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The Massachusetts Medical Society

SECTION OF TUBERCULOSIS

SESSION HELD AT PITTSFIELD, JUNE 13, 1923

THE GENERAL MANAGEMENT OF TUBERCULOSIS*

BY COL. GEORGE E. BUSHNELL, U.S.A. (RETIRED)

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TUBERCULOSIS is the only grave disease which we expect to influence by what seem comparatively slight and unimportant remedial measures. Contrast tuberculosis with its great rival in the destruction of the human race—cancer. No one thinks for one moment of expecting durable and valuable results from submitting the cancer patient to improved conditions of hygiene, fresh air, rest, food and the like. Such a difference can only be explained by the fact that is now generally admitted, that the vast majority, if not all of the members, of the civilized community have come into contact with the tubercle bacillus and most of them in a way that proves to their advantage; that is,

*An earlier paper by the writer covers in part the same ground as this address, and contains, in somewhat different form, some of the case histories referred to. See "Treatment of Tuberculosis," *Medical Record*, May 11, 1918.

they secure an immunization against tuberculosis through the incorporation of small numbers of the bacilli. This immunization is successful in the majority of the population; so much so that they do not acquire tuberculosis as a manifest disease, no matter what their exposure to infection. And these who do fall ill with the disease, many of them, have relatively curable forms or those that pursue a protracted course. In these respects the contrast with the tuberculosis of savage races when exposed to infection for the first time is very marked. Under such circumstances the adult, equally with the young child, falls a prey to the acutest and most deadly forms of tuberculosis, and tuberculous infection is directly as the degree of exposure. Such facts should inspire us with optimism as to the possibilities of the treatment of pulmonary tuberculosis. The cases of manifest tuberculous disease are cases of failure in immunization in a minority of the population, but the failure to resist may be, and often is, slight and temporary, so that even relatively trivial remedial measures are sufficient to enable the patient's resistance to reassert itself and to triumph over the disease. Our object of treatment, then, is to help the patient to cure himself. We are helping the patient, not attacking directly the tubercle bacillus, and therefore we must individualize in our treatment. There is no routine treatment, applicable to all cases alike, in pulmonary tuberculosis.

The family physician usually first sees the case of pulmonary tuberculosis. The diagnosis being made, the first question is: where shall the patient be treated, at home or in the sanatorium? As respects skill in the diagnosis on the part of the physician and conditions of hygiene, discipline and instruction for the patient, as well as what is often very important, his escape from the cares and distractions of family life, the advantage is usually on the side of the sanatorium. But in many cases, especially those of mothers with young children, sanatorium treatment is refused, so that the family physician is presented with the difficult task of not only converting the patient to his way of thinking but also of converting the other members of the family into coadjutors.

Tuberculosis is almost unique in one respect, for in dealing with it the task of the physician is not to induce the patient to obey orders and take medicines for a brief period, but to so educate him that he will take up a new mode of life, and not only comply with the present wishes of his adviser but continue his precautions indefinitely after he is no longer under treatment. No matter how great the skill, the prestige and the authority of the doctor may be, his influence will wane when the patient removes himself from his care unless the reason for the precautions advised are made perfectly clear. The patient should obtain some idea of the pathological conditions in his case and the object sought in the treatment, which can be done only by teaching him something of the way of the tubercle bacillus in the relatively immunized case. The facts, divorced from technical language, are really simple and should be understood by patients of average intelligence. "Doctor" means, of course, by derivation "teacher," and in the treatment of pulmonary tuberculosis the physician must justify his title by teaching his patient.

How shall the physician qualify as a teacher? This is not so easy at it may seem at first sight; in fact it is one of the greatest difficulties in organizing a sanatorium staff. It is not hard to obtain more or less pessimistic scientists and diagnosticians expert in internal medicine, but it is a much more difficult undertaking to collect a corps of assistants who are so sincerely interested in their patients' welfare that they are willing to take extra pains to influence and instruct them. The physician must first of all satisfy the patient as to his competence—that he knows what he is talking about; and he must also persuade and convince, and he cannot do this unless he shows a genuine interest in the patient's welfare and is sincere in his dealings with him. The truth will come out in the long run; it is better to commence with the truth. The patient should be told frankly the gravity of his condition, not that the imminence of

death should be insisted upon in the case of the moribund patient—such cases are not now considered—but that patients who have a chance of recovery should be prepared for the probable length of treatment necessary. There is great disappointment if the patient has been assured that a few weeks will set him upon his feet again when he learns that the treatment that he needs must necessarily be a protracted one. "We come for weeks, for years we have to stay," as the sanatorium poet says. On the other hand, the brutal frankness with which some say: "I will give you so and so many weeks to live" is astounding. Fortunately, such rash estimates often prove erroneous; the shock to the patient, however, may easily be imagined. In one case a physician came to the South West with the prognosis of three weeks of life—made in a consultation—who actually lived about ten years and practiced his profession the greater part of this period.

The "tripod of treatment," fresh air, feeding and rest, is familiar. A full discussion of the management of the patient as respects these three matters is far too large a subject for a single hour. It is proposed, therefore, to touch upon only a few salient points, and to devote the time remaining largely to practical hints as to the instruction of the patient.

As for fresh air, everyone agrees in a general way as to its benefits. The point to be emphasized is that the physician must show the sincerity of his belief in it by never ignoring infractions of his rules. If he preaches fresh air he must be a very zealot about fresh air. I once inspected a room occupied by four tuberculous patients in a tuberculosis hospital in which every door and window was tightly shut on a warm summer afternoon. The hospital doctors who accompanied me seemed not to notice the fact; trained nurses who were present were equally oblivious to it. When I inquired the reason for the closed windows I was told that there had been a shower and that they had forgotten to open the windows after it! What must patients think of the importance of fresh air when doctors and nurses are so indifferent to it! The American Red Cross had a hospital on the Italian front in which the results of the treatment of pneumonia were so much better than in the other hospitals on that front that a commission was sent to the medical officer in command to ascertain his method of treatment. The only difference was that he had opened every window in the wards and nailed them fast, threatening court-martial for any one who should dare to close a single window—and this in the winter time. Such a rule would be a good one in a sanatorium for tuberculosis.

As for food, stuffing as a routine practice has been given up by the physician, but not as yet by the patient. One must know when to stuff,

when to stop stuffing, when not to countenance it at all. The proletariat of large cities, men who have kept at work too long, mothers who are "too tired to eat," will be benefited for a time by an abundance of plain food. When they are "filled up," as we say in the army, that is, when the dietetic deficiencies are made up, the daily ration should be reduced. The great majority of patients have no dietetic deficiencies to make up, and from the first should be put upon the relatively restricted diet which alone agrees with the resting individual over long periods of time. No one should be permitted to stuff as a routine indication of treatment, yet patients are almost a unit in demanding it. Most of the miseries of the tuberculous patient are due to over-eating or to an improperly selected diet. Permit me to state the conviction here that too much fat, and especially a fatty breakfast, is particularly bad for the inactive consumptive. Nothing that is bad for the health is good for tuberculosis in the long run, and this applies to food as a fundamental and universally applicable proposition.

Rest, or, more properly, the degree of restriction of bodily activity, is the burning question. Rest in bed is indicated (1) for the lesion alone, (2) for the patient's general condition, as well as for the state of his lungs. With regard to the first head, a relatively strong person is generally first found to have tuberculosis when there is an exacerbation in a focus which has already reached the stage of conglomerate tubercle, though the amount of caseous tissue may not be large. The patient has malaise, a little fever, an expectoration positive for the tubercle bacillus, perhaps has had a hemorrhage; his lesion shows moist râles. But he is strong; after a few days he feels, or thinks that he feels, as well as ever. Why should he stay in bed? The exacerbation has been analogous to a tuberculin reaction; we have a congested focus. That means more blood and more lymph. Neighboring the tuberculous focus are healthy tissues which have a smaller amount of lymph. The diseased focus is but slightly expansible. When the patient breathes with the part of the lung affected the healthy parts expand more than the diseased parts. Hence there is great danger of the aspiration of lymph containing tubercle bacilli from parts with abundant moisture and slight motion to parts with little moisture and greater motion. In other words, extensions downward into healthy lung are invited. This, the current explanation is, it must be admitted, more or less hypothetical. Miller, the authority on the anatomy of the lung, has recently found in examining recent tubercles of miliary size that he could always trace the path of the infection back to the lymphoid tissue that lies at the bifurcations of vessels and bronchi. This would seem to show that even extensions in the super-

ficial lung are really of a peribronchial nature. However, there can be no question but that soaking of a region with poisoned lymph must favor the implantation of new tubercle. If such considerations are too abstract for the patient, he can at least be told that it is a general surgical principle that an acutely inflamed part should be rested. One does not squeeze a boil because it hurts to do so. The inflamed focus in the lung is a boil that does not hurt because there are no nerves in the substance of the lung. Deep breathing amounts to squeezing the boil. The patient, therefore, is kept in bed in order that the lung, which cannot rest absolutely under the conditions, may, nevertheless, be exercised as little as possible. If the patient had broken a leg he would not ask to exercise it, but he is threatened with a much worse condition than a badly healed fracture. Such considerations may reconcile the patient to quietude. But, after râles have disappeared, fever is gone, and sufficient time has elapsed to show that there have been no extensions into new tissue as the result of the exacerbation, the patient is allowed to leave his bed. The time of beginning exercise, as has well been said, is a time of danger for the patient. The amount of exercise that is permissible is a more difficult question than the question when exercise shall begin. Fortunate is the patient if at least a long period of careful observation precedes the attempt to produce "self-tuberculinization" by exercise. In my judgment if exercise really "tuberculinizes" the lesion its immediate discontinuance is indicated. Tuberculinizing a lesion is about as safe a procedure as attempting to control high-voltage electricity by guess or with rudimentary apparatus.

The patient who is up and about but is restricted in his range of activity is often difficult to manage. I always despair of the future of him who constantly seeks additional concessions. "Why can I not do this; would it hurt me to do that?" "Why can I not go to the card party or just look on at the dance, or go on the automobile ride?" The answer, of course, is: "I do not actually know whether the privileges that you ask would be injurious or not, for no one can measure your resistance accurately. But, that being the case, the only wise course for you is to be so careful that you are sure to receive no harm." The engineer who builds a bridge does not plan its strength so that it could just sustain the greatest possible load. On the contrary, though, he can measure accurately the resistance of the bridge, that is, the strength of the materials used, in order to be absolutely sure he makes the bridge about twice as strong as theory seems to demand. And the skater who tries to see how close he can come to the edge of the ice is pretty sure of a wetting.

It helps greatly to impress the idea that rest is

a prophylactic measure. I often assure my patients with small lesions that if I could be guaranteed that there would be no extensions of the tuberculosis I would ignore the present lesion and send them back to work. *Rest is used to prevent the tuberculosis from spreading.*

But I must hasten to consider the second indication for rest—rest for the general condition of the patient as well as for his lesion. In considering this class it is desired to call attention especially to the advanced cases of tuberculous disease. Because a lesion is large it does not necessarily follow that the immediate prognosis is bad. Each case must be individualized in estimating the prognosis, which depends upon many factors besides the size of the lesion, among them the duration of the disease. A patient who has long resisted pulmonary tuberculosis may be expected, in the absence of signs of recent large extensions, or of complications, to have a reasonable chance to continue to resist the disease for a considerable period, and the more so if the physical signs show that the greater part of the lesion is rather old and dry or nearly dry. There is altogether too much pessimism about such cases, which are often given up as hopeless when really there is much that can be done for them. The indications for the continuance of the bed treatment on the part of the patient with a large lesion are based primarily, of course, upon the temperature, but the cessation of fever is not necessarily a signal for the abandonment of the bed. Very protracted treatment is sometimes necessary to accomplish all that can be accomplished and to save the gains that have been made. A physician who had a large pulmonary lesion with a cavity, considerable fever and physical signs which denoted a well marked activity of the tuberculous process was accustomed to dress every morning and go down stairs to spend the day sitting quietly on the lawn. When I assumed charge of the case I at once directed him to go to bed, to which at first he strenuously objected. However, his objections were overcome and he began a course of treatment by complete rest. Under this treatment his temperature fell, his cough nearly disappeared, and after several months his lesion became entirely dry. He was, however, kept in bed for several months longer. Finally he left for the East, where he consulted several specialists, who agreed that his lesion was arrested, a word which I had abstained from using. He at once became enthusiastic at the success of his treatment, made all manner of plans for the future and seemed to think himself completely cured, notwithstanding several admonitory letters which I sent him. As might have been expected, he soon overexerted himself, brought on a series of severe hemorrhages and finally died. The case illustrates both how a slight change in treatment may transform a serious case and

also how long extreme care is necessary in the after-treatment. Another case had a more fortunate ending in spite of, or because of, a complication rightly regarded as a serious one. A naval officer, fifty-eight years of age, had a large lung lesion which at one time had been quite active, but its activity had subsided to a considerable extent, although cough with a sputum positive for the tubercle bacillus still persisted. His idea of treatment was to spend the day out of doors, driving about the country and the like, but avoiding active and prolonged exercise. The prognosis appeared to be a considerable prolongation of life without actual arrest of the disease. Finally the patient began to suffer with pains called rheumatic, which became so severe that he was compelled to give up and go to bed. Coming under my care, it was at once discovered that he had Pott's disease of the spine, which involved one dorsal vertebra and had produced a sharply projecting knuckle. The body of the vertebra was so nearly destroyed that the pains could be transferred from one side of the body to the other. There was nothing to do but to put him to bed on his back, and there he remained for seven months without once turning over. When he was allowed to get up his back was soundly healed and his lung lesion was completely arrested. This officer has been on active duty since that time, with few and brief intermissions, and when last heard from was still at work and well, though now considerably more than seventy years of age.

Many patients belong in this class who believe that they belong in the first class. Patients whom we used to call neurasthenic, those with an unstable and irritable nervous system, often overdraw their capital of nervous energy. They are said to have "anesthesia of fatigue," continuing to work, or play, as they often do, until exhausted. Excitement often keeps up the tuberculous patient until the emergency of the moment is past. Patients who reach the sanatorium after a long journey and are put to bed as a rule do not recognize at first how tired they are. When there is no further need of keeping up and they begin to "let go" their nervous tension the revelation as to their weakness terrifies them. Patients have sometimes said to me: "I grow weaker every day that I stay in bed; I shall die if I do not get up." It is well to assure such patients in advance that they will feel weak after they begin to rest, and that that is not due to being in bed, but simply shows how much they need rest; that they must go down to bed-rock, learn what their true condition is, and start with a solid foundation for their future health. Such a patient has had a lesson in the management of his nervous system that he will not soon forget. Many, however, who have never been completely exhausted, are more difficult to convince of the need of rest.

A patient needs to be educated to take the bed treatment; he must learn to rest in bed. Lying down is not necessarily resting; the weak nervous system is "too tired to rest." It is characteristic of the exhausted nerve that the inhibition of movement, which should be the first effect of the application of a stimulus, is absent, and every excitation, even the slightest, is immediately followed by muscular contraction. So the weakened nervous system is quick to expend what nerve force remains on slight provocation. And it is equally reluctant to store up energy, every little addition to the bank account being followed by an increased expenditure. It is well to teach relaxation of the muscles, as formerly popularized in the Delsarte method, as a formal procedure, to insist on absolute relaxation of muscles and quietude of mind for certain periods—at first brief—every day until the patient acquires the valuable art of "letting go" completely. In the more serious cases perfect rest is the occupation of the day, the intervals for toilet, meals, conversation and the like being the amusements that temporarily break the monotony. Patients should be treated like men and women, not like children, and the responsibility for the proper conduct of their cases should be put squarely upon their shoulders. The physician is not to be excused who permits harmful exercise or harmful amusements and occupations of any kind on the plea that otherwise the patients will become homesick and discontented. I sometimes say to my patients: "You think the treatment for tuberculosis an easy one because you take but little medicine and have nothing to do but to lie down. On the contrary, the treatment is a very hard one if you get out of it all that is possible, and the sooner you set at work to learn it thoroughly the better you will get along." Some patients will tell you that their minds are too active to rest, and plume themselves on the fact as an indication of mental superiority, though their alleged mental activity accomplishes no useful purpose. It is well to be politely skeptical as to their interpretation of this symptom which, of course, simply shows how greatly mental rest is needed. Some well nourished persons when put to bed and fed well with meat become "wild" with restlessness, which in this case is a sign of a too stimulating diet rather than of mental exhaustion. In general, peace in bed depends upon the feeding. One whose stomach fails to digest its load can never rest comfortably.

It is important to begin at once with persons of the nervous type to teach them to control their emotions. Homesickness and morbid (though often well founded) apprehension as to their future do much to retard the patients' recovery. They are apt to meet the suggestion that they cease worrying about themselves and longing for their family by the objection: "I

know that I am sick and away from home and it is useless to pretend that I do not." The rejoinder takes the form of a lecture upon the influence of the emotions, and especially depressing emotions, upon the viscera, and the distinction between the intellectual apprehension of and the emotional reaction to a fact. This distinction is readily grasped if put into simple language. "The heart, the stomach, and the liver do not care about what you *know*; they are only affected by what you *feel*." To patients who are slow in cooperating in this particular a concession is made. Since you say that you cannot help worrying, if you will promise not to worry at other times, I will allow you a "worrying hour," say, between five and six P.M. In that hour you can set at work to worry just as hard as you can. The absurdity of this suggestion invariably excites a smile, for it is quite evident that a patient who deliberately tries to worry will not succeed very well in the attempt.

Docility—willingness to be taught—is one of the important factors in the diagnosis. It does not depend, of course, upon the degree of intelligence. I recall two patients of about the same age and both with large lesions who were admitted at about the same time. The cases appeared so much alike that I often speculated as to which would make the better recovery. Both were intelligent professional men. One of them, it soon appeared, already understood perfectly any matter that might be brought to his attention, and quite evidently did not wish to hear anything further, seeming, in fact, to resent instruction as a reflection upon his intelligence. The other, on the contrary, was painfully anxious for instruction, seemed never to get too much of it and took equal pains in carrying out any suggestions that were made. One cannot compare cases altogether by the size of the lesion, but the fact is that the first patient died and the second made a good recovery. Lack of docility lies at the bottom of much of the failure on the part of the patient to carry out the suggestions of the physician. As, for example, in the matter of useless cough. Some patients will try to suppress it, others will claim that they cannot do so. To one of the second class I once spoke of the rule in a German sanatorium that patients who coughed at meals were not permitted to eat in the dining-room, and asked him how it would be if he got no supper because he coughed. "In that case," he promptly replied, "I should stop coughing."

Treatment for tuberculosis, lying in bed, the various symptoms, the presence perhaps of seriously ill patients all amount to depressing suggestions. I do not count the daily visit of the physician among the depressing influences. On the contrary, if he possesses the requisite hopefulness, zeal and interest he becomes the

patient's inspiration, the support upon which he leans, the psychotherapist who overcomes depression.

Much can be done in the daily visits to banish unnecessary anxiety as to trivial symptoms. Those who believe, as many seem to do, that every symptom and sensation that a tuberculous patient has is due to the toxins of the tubercle bacillus, would be of little help to the patient in that regard. But the fact is that pulmonary tuberculosis is conspicuous among diseases for the absence of symptoms which are directly ascribable to it. This is shown clearly by the "spes phthisica." The patient is hopeful because he does not feel badly. He is weak, to be sure, yet that weakness must surely be transitory because he feels so perfectly well otherwise. And this, though his lungs may be absolutely stuffed with tubercle! Contrast this picture with that of the early consumptive, so often morose and depressed with a thousand symptoms which he is anxious to detail to all who will listen. I was accustomed to say that I spent my days in telling my patients that their various symptoms were not, as a rule, due to their tuberculosis (though, of course, certain complications involving the pleura and other organs besides the lungs may be painful enough), that they were symptoms such as anyone who is a little below par often feels, and of no importance except as indicating that something was wrong with the digestion or the elimination which demanded correction. The vast majority of the troubles of the average tuberculous patient are due to the fact that he cannot divorce himself from the idea that stuffing is his only salvation. Well men (and many tuberculous patients are hardly to be distinguished from well men) would feel as badly if submitted to the same regimen.

So far, the treatment that has been outlined is applicable to all tuberculous patients. Are there not at least certain patients who may be encouraged to go further? In my opinion, we may well consider an autopsychotherapy in which the patient is taught to ignore unfavorable sensations and suggest to himself sensations of well-being and of strength. This comes close to the position of Coué, but with this difference: Optimism is only in place when the conditions of treatment are complied with and when removable injurious influences have been done away with. The patient is encouraged to be optimistic because his physician is sure that he is on the right road. If he were taking an injurious amount of exercise or otherwise neglecting treatment to his injury he should not be led to expect a favorable outcome of his case.

Few, I think, realize what can be done in favorable cases when the patient coöperates fully in the treatment. For this reason I desire to give briefly the history of the most remark-

able cure in my experience. A captain of the Army arrived at Fort Bayard on a litter upon which he had traveled all the way from West Point. He was completely exhausted and his condition was so bad that his mother was telegraphed for, and stimulants were resorted to in the hope of keeping him alive until she could arrive. But after a little rest he revived somewhat and it was possible to examine him. He had a high fever; there was an enormous cavity on the right side and the right lung was involved to the very base. Fortunately there was no evidence of a lesion of the left lung. When the patient inquired as to the prognosis he was told that his case was a serious one and that its outcome was doubtful, but that there was a way in which he might help himself if he would follow instructions. He was taught how to relax and the principles of autosuggestion were explained to him. He grasped with eagerness the hope thus held out to him and, being quick of comprehension, soon understood perfectly what he was to do and devoted himself with his whole soul to the work. His mother, who had come to see him die, remained with him for two years. At times the part which she had to play was a difficult one, for the patient exacted absolute quiet while he was relaxing, and often would not even permit her to turn the pages of a book lest the sound interfere with his concentration! When he finally arose from his bed he was round of limb and rosy of face; no one would have believed that he was a consumptive. He left the hospital, married, and leased a house in a southwestern city. When the lease was delivered to him the agent is said to have remarked, "Well, I am glad to let one house to a man who is not a lunger," little dreaming that the person whom he addressed had lost practically the whole of his right lung! The patient lived a careful life for some twelve years, and was strong enough to return to active service in the Army for local work during the late war. Shortly after the war, however, he was attacked with pneumonia of the left lung, and that attack proved fatal. The share which the psychic treatment had in this remarkable recovery can only be conjectured, but it may be said that I have never before seen so ill a patient recover from tuberculosis nor have I known any other who carried out so faithfully the principles of that treatment.

The foregoing remarks assume that the physician has an accurate knowledge of physical diagnosis. Unfortunately, skill in the diagnosis of pulmonary conditions has hardly kept step with the other advances in the medical art. Better instruction of the general practitioner in physical diagnosis seems to me a prerequisite for any further successes in the campaign against pulmonary tuberculosis.

THE SANATORIUM TREATMENT

BY ERNEST B. EMERSON, M.D., RUTLAND, MASS.

Superintendent Rutland State Sanatorium

WHY the sanatorium? The answer to the query is suggested by asking what functions the sanatorium should perform. Briefly, for the patient it should afford relief and impart knowledge; to the community it should be a source of information and assistance accessible without difficulty to both layman and physician. Broadly speaking, to what extent has the sanatorium made good in fulfilling these functions?

The work of the general hospital is judged by the absence of sepsis, its nursing standards, the skill of its surgeons and the immediate and oftentimes spectacular relief of its patients. To a lesser degree do the immediate results of the sanatorium enter into the final judgment as to whether it has fulfilled our expectations and hopes.

The original purpose of the sanatorium was for the treatment and cure of tuberculosis and while it still serves this function I believe that in a broader sense the real value of the sanatorium rests in its educational program, and in so far as it has failed to reach the community through its patients so far has it failed in its obligation. The number of arrested cases credited to the sanatorium is discouraging, to say the least, and the number cured is negligible, but the principles of sanatorium treatment and the knowledge obtained there are not entirely forgotten when the trained consumptive returns to the community. The educated, thoughtful outpatient—and this does not necessarily imply book knowledge—becomes a working missionary, an apostle with a message, and to him belongs a part, at least, of the credit for whatever headway has been made in the tuberculosis campaign.

The sanatorium has not been, however, the source of information and assistance by direct medical contact in the community as has the general hospital with its free clinics and modern methods of diagnosis free to all for the asking, and the sanatorium is open to criticism for the failure. Yet its isolation, not infrequently several miles from the railway, the multitudinous duties of the superintendent, and an inadequate medical staff may be offered as an explanation of the shortcomings of the past. Better means of transportation and larger medical staffs sufficiently paid to remain in tuberculosis work should and will bring the sanatorium to the community, and when it reaches the people, as the general hospital has, in an intimate and personal way, they will seek its resources for diagnosis, advice and treatment and not look upon it with suspicion and as a place of last resort after everything else has been tried out.

The onset of tuberculosis is not definitely

known and there are many cases in which the diagnosis is difficult and often in doubt, even after a considerable period of observation. Many of these might be reached without loss of valuable time were the facilities of the sanatorium readily accessible. There is no reason why it should not serve the public in exactly the same way as the general hospital, except that a diagnosis of tuberculosis is a legal requirement for admission and in some instances the tubercle bacillus must be demonstrated before satisfactory credentials for admission are established. Eliminating such conditions for admission and admitting suspects for observation and diagnosis would go far toward removing the stigma of going to an institution for tuberculosis; the sanatorium would do better work and the public would receive the benefit.

Three years ago a start was made by the Department of Public Health to bring the four state sanatoria to the people by means of a free consultation service and school clinics. The response has been most gratifying, not only from an early diagnostic point of view but also from the personal touch established between the sanatorium and the public,—a relation greatly to be desired. These clinics have not only revealed the difficulties which beset the general practitioner in arriving at a diagnosis, but they have shown wherein the sanatorium has failed to render a full measure of service. The examiner from the sanatorium frequently finds himself unable to make a diagnosis from a single examination and not infrequently he is in the fog after several examinations. These are the cases which ought to have the privilege of admission without waiting for a positive diagnosis; such a system would afford many an early case immediate treatment, and those who were not tuberculous would have an interesting and profitable experience and would depart with their apprehension relieved.

What has the sanatorium to offer the individual that he cannot have at home? Home treatment has its place, in fact it makes up the major part of the rôle every patient must follow, but it is the advanced student and not the beginner who should undertake it.

There is no disease that requires so much teaching and so much patience on the part of the physician as tuberculosis. This being so, it is the educational side of the sanatorium which I wish to emphasize, and in a general way to indicate the advantages of early sanatorium training. The majority of the early clinical forms of tuberculosis are curable provided the proper régime has been adopted and further provided it has been continued a sufficient length of time. It is a serious problem, however, and the sooner the patient realizes this and learns to adjust himself to the life he must live, the better are his chances for recovery.

The average individual arriving at the sanatorium knows little or nothing about tuberculosis and less concerning the treatment and what is expected of him. He may look upon his condition lightly or be unnecessarily apprehensive. He has much to learn and some notions to unlearn. With all that has been written and said, it is amazing how little has been absorbed or, if absorbed, to what a limited extent the knowledge has been put to practical use by many presumed to possess a reasonable degree of intelligence. There are people yet to learn that the disease is caused by a germ.

The essentials for the treatment of tuberculosis are: rest, fresh air, food and regulated exercise. Not one may be omitted, unless, possibly, the exercise. It is the proper adjustment of these simple measures and not a radical change in climate, environment or the administration of magic serums that brings about the desired results. The importance of fresh air is generally recognized; it is easily prescribed and readily taken. Food fills a large place in the minds of the majority. The teaching of twenty years ago that a patient must stuff himself with milk and eggs still lingers with the laity and to a lesser degree perhaps with the profession. Granting that there is an occasional case where forced feeding or, rather, extra nourishment is indicated, it is my belief that more patients are harmed by overeating than by undereating. A normally functioning digestive system is the patient's greatest asset and should not be abused because of the popular conception of what constitutes a proper diet for the consumptive. It may happen that more good will be derived from skimmed milk and a saltine than from steak and potatoes, and even fasting is occasionally prescribed, with beneficial results.

The omission of lunches at Rutland has been followed by an average increase of nearly two pounds per patient over the average gain in weight when lunches were a routine practice; accompanying the increase in weight there has been a marked reduction in the number of digestive disturbances.

Rest as a therapeutic measure is an indefinite term and signifies anything from sleep to the substitution of some other form of activity, either mental or physical. Krause has well said that it is the "sovereign remedy for tuberculosis"; in fact, it is the only one that has stood the test of time. Without rest, all other known measures, important as they may be, will surely fail. It is the bed-rock of tuberculosis therapy and the one remedy that 100 per cent. of tuberculosis patients will evade if they can devise any form of excuse to get ahead of the doctor or to deceive themselves. This is particularly true of the convalescent or quiescent case who fails to grasp the vital importance of conserving his energy. This fact alone is responsible

for a large proportion of the relapses and failures.

Rest for the acute active case does not mean cessation from work and spending the time in the open air between an easy chair and a hammock. It means rest in bed, undressed, and possibly the substitution of a bed pan for toilet privileges. How many people can or will carry out such a prescription at home? The spirit may be willing, but the family or neighbors will not give the patient the opportunity.

With the subsidence of symptoms and the return to normal of temperature and pulse intensive rest is modified by the substitution of graded exercise. The meaning of exercise, however, is as indefinite as that of rest. Exercise begins where rest leaves off; it begins when the patient sits up in bed or is permitted chair treatment and toilet privileges.

There is no danger in prescribing too much fresh air and rest; there is some hazard in too much food, particularly promiscuous eating; too much activity, however, will retard convalescence or undo the results of months of rigorous living.

I have said that the onset of tuberculosis is not definitely known, neither is it possible to say definitely when a cure is established. Between the diagnosis and the cure is a long interval, one to tax the courage of the most optimistic. On the other hand, by reason of that sense of well-being experienced by all convalescents the time comes when he forgets his handicap and disaster shortly follows. This broad danger zone is a most difficult period through which to carry the patient. Treatment does not end when he leaves the sanatorium,—it has only begun.

The right mental attitude is most essential and is not altogether a matter of chance or wholly dependent upon the patient's Maker; it is in some measure a cultivated state of mind and the product of heredity, teaching, suggestion and observation. The patient must have the spirit and determination to get well, based upon faith in himself and a willingness to yield to the discipline of a new life.

The diagnosis at once raises the question of what shall be done with the patient. So many conditions complicate the situation, as a reluctance to admit he has the disease, home surroundings, family finances, the lack of intelligence of the patient or family, or erroneous ideas in regard to treatment that a workable plan is not always easy to put into operation. The mere presence of tuberculosis does not of itself indicate any stereotyped line of treatment. The diagnosis must go further than to say tuberculosis is present. It must determine whether it is active or inactive, how extensive the involvement and whether there are complications; if an inactive lesion, how complete is the arrest and if active, how active, together with a "size-

up" of the patient's general physical and mental equipment. An accurate valuation of all signs and symptoms, social and financial problems, requires careful study and sound judgment before intelligent treatment can be outlined.

All or many of these questions may be solved by a preliminary course of instruction in the sanatorium, and a foundation laid upon which the patient may intelligently carry out a program for the months and years that are to follow. Far too frequently home treatment or rest on a farm is prescribed offhand with no definite instructions for the patient to follow and with no background in his mind as to seemingly insignificant details. That tuberculosis may be cured at home or on the farm cannot be gainsaid; the disease may be arrested even without treatment; however, such instances should not deceive one as to the probable outcome in the majority of cases of clinical tuberculosis. Home treatment, the farm and the sanatorium all have a place in restoring the patient to a working capacity. Success depends largely on the intelligence with which these measures are prescribed and with what persistence and purpose the patient himself seeks the cure.

The importance of proper treatment and the probable results of carelessness or thoughtlessness on the part of the patient must be impressed upon him at the start, and the impression made sufficiently indelible to carry him through the period of convalescence when he feels so well that he no longer considers himself an invalid, and even beyond the so-called period of convalescence to the time when he may be classified as cured. He must be made to realize that he is more or less permanently handicapped and that he must adjust his life to meet the situation.

How to accomplish this without taking all the joy out of life is a part of the problem. Again, it is a matter of education, not only of the consumptive himself, but of his relatives and neighbors. The consumptive who is to win against a destructive process with a tendency to a fatal ending must possess a certain degree of intelligence, must cooperate with his physician, and must display a fair degree of will power and determination. Intelligent cooperation cannot be secured or maintained unless he has at least some knowledge of the disease and knows the reasons for treatment, details which may otherwise seem unnecessary or even absurd. Is it fair to expect a patient to obtain this knowledge by himself and to get the proper point of view from the many instructive and valuable contributions available for his use? Can he properly sense the reasons why he should lie in bed when possibly his neighbor with the same disease is given exercise? Furthermore, can the physician lay down a routine for home treat-

ment and will such a routine be followed? In a measure all these queries may be answered in the affirmative, but are we not expecting too much of the average man sent away to the country with a package of pamphlets and general instructions to rest and to take plenty of nourishment,—perfectly good advice for the chronic type but not a good prescription for the early or acute case with no background based on the practical experience of a trained consumptive.

The wonderful progress in the control of tuberculosis during the past twenty-five years is the result of a better knowledge of how to live and how to avoid infection. This knowledge has been disseminated not alone by the physician but also by the consumptive himself, trained in the sanatorium concerning the characteristics and manifestations of the tubercle bacillus. As the academic training of the physician, or nurse, must be supplemented by practice and experience, so also should the theoretical knowledge of the consumptive be supplemented by actual contact and experience with the disease. No man can be his own physician, yet the consumptive not infrequently is either left alone or sent away with a few general instructions and expected to do the rest himself. The first step in the treatment of the patient is his education, carrying home to him the truths he must know and must apply with all the zeal he lives his religion. He must have something more than a generalized knowledge of the disease and its treatment. His ideas must be systematized and crystallized in so far as they apply to him personally. While it may be possible to accomplish this at home, the significance of symptoms and the importance of meeting them by proper treatment at the right time are frequently not recognized until too late.

A rudimentary course of instruction in the etiology, pathology, symptoms and treatment as taught in the sanatorium, combined with the practical experience of living the life, does not result in morbid brooding or undue apprehension regarding the future,—on the contrary it acts, I believe, as a stimulus to beat the game; certainly no more cheerful nor optimistic group can be found than in the sanatorium where this teaching is a part of the life and the patient can see tangible results in others, if not in themselves. The patient with this knowledge is better able to appreciate the situation and his own problem in an intelligent manner and to reconcile himself to the program he must adopt if he is to win his health, or at least a working capacity. The whole future of the consumptive depends upon a readjustment of his life, and weeks and months should not be wasted by a false start or delay in the course of instruction in the habits of living which must be maintained for months or years if permanent results are to be obtained.

THE HOME TREATMENT OF PULMONARY TUBERCULOSIS

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Doubtless little that is new on the subject of home treatment can be presented in this discussion, but an attempt will be made to state basic principles of treatment rather than details of method and to interpret the spirit rather than the letter of those factors which make for success in this method. Such details as to plan, equipment, standards and regulations applicable to home treatment may be found in the literature on this subject, easily available to those desiring this information. That some physicians in general practice may be helped to a better understanding of this subject and may be encouraged to supervise treatment of tuberculous individuals in their homes (in those cases in which sanatorium treatment is impossible or impracticable, and where home treatment is clearly indicated), has been the earnest desire of the writer in the preparation of this article.

The fundamental factors in the successful treatment of pulmonary tuberculosis, whether carried out in the sanatorium, the home, or elsewhere, remain the same. The practical application of these basic principles, however, may differ widely according to the constitution and environment of the individual under supervision and, in addition, the facilities and equipment at the disposal of the physician. Dr. William Osler states the essential elements for successful treatment most concisely as follows:

"First, the confidence of the patient, since confidence breeds hope; secondly, a masterful management on the part of the doctor; thirdly, persistence . . . ; fourthly, sunshine by day, fresh air night and day; fifthly, rest while there is fever; sixthly, breadstuffs and milk, meat and eggs."¹

Nothing inspires such confidence in the physician on the part of the patient (and the patient's family as well) as a firm belief in the following:

(1) That the doctor knows thoroughly what he is doing and what he is talking about when he examines, treats and supervises the patient.

(2) That the doctor is sincere, truthful and frank (but not brutal) in his discussion of the patient's condition with the patient himself and with those who are responsible for his care.

(3) That the doctor's *personal interest* in the patient, as an *individual*, is at least equal to, if not greater, than his *professional interest* in the patient as a *case*.

(4) That the doctor has an unwavering faith in Nature's power to arrest the disease, provided her laws are known and obeyed.

(5) That the doctor also has unbounded confidence in his own ability to plan and supervise the campaign, and also a contagious enthusiasm that will inspire the patient to "play the game" and win.

"Masterful management" on the part of the doctor is by no means easy, but it is of tremendous importance. As soon as the diagnosis of active tuberculosis has been made and accepted, no time should be lost in getting the education, training and treatment of the patient under way. As soon as possible the patient's physician should call a family council of war. A thorough survey of all the actual conditions bearing upon the case should be made. Difficulties and problems should be stated clearly, faced squarely and all possible solutions considered. All material assets that can be used, and the various helpers and agencies that can be depended upon for assistance, should be carefully listed in the general "stock-taking" survey.

From the very first it must be fully understood by all concerned that the doctor is in supreme command at all times; that he will lay before the family council the general plan of the campaign; that he will secure their approval and co-operation of the original plan (or such modification as may be found necessary); that he will outline in writing the daily routine for the patient to follow; that he will designate to each of his various helpers their specific duties and set them to work. The doctor should be extremely careful to lay down but few rules and regulations. However, such orders as he does give should be simple, possible of execution, and vitally necessary for the well-being of the patient himself and for the safeguarding of others from infection. These rules and regulations should always be written, and when once thoroughly understood by the patient and those serving him, should be reckoned as immutable as the ancient laws of the Medes and Persians. Referring to the importance of the work of the general practitioner in the fight against tuberculosis, we quote again from Dr. Osler:

"The brunt of the battle must be borne by the practitioners at large. The better they know the disease, the better equipped they are to recognize it early, the more intelligently will they appreciate the conditions under which, even in homes, it may be arrested or cured."²

One important truth that must ever be kept in mind, if home treatment or any other treatment is to be carried out successfully, is that when all is said and done, *the fight for health is primarily and almost wholly the patient's own individual fight*. He should be impressed with this fact at the very beginning of treatment, and it should be reiterated as often as found necessary during the course of treatment. In view of this conception, no equipment can be

too good for the patient, no service too great to render him, in order that he may have the best possible chance to get well and to take up his work and responsibilities again. But such high standards of service on the part of doctor, nurse and others, demand on the part of the patient the fullest degree of co-operation possible: viz., that he "play the game" with courage, faithfulness and cheerfulness. Often the more difficult the regimen, the greater the self-discipline demanded of the patient, the more splendid and hearty will be his response; for all men dream of doing great deeds, of making noble and heroic sacrifices, and the tuberculous individual, in this respect at least, is no exception to the rest of mankind. Demand as much within reason and justice as you dare if you would inspire your patient to make the most of himself and of his circumstances.

Those doctors who have as helpers the modern Public Health nurses are fortunate indeed, for next to the doctor himself, the conscientious, experienced nurse is by all odds the most important single factor in successful home treatment. It is the nurse who is continually "on the job," teaching and training, inspiring and rebuking, sympathizing and cheering, not the patient alone, but also his family, relatives and friends. She sees to it that the doctor's orders and suggestions are understood and carried out, and many minor details in the care of the patient can best be left to her ingenuity and faithfulness. It is more than likely, however, that many general practitioners who will be called upon to treat tuberculous patients in their homes will not be so fortunate as to have the assistance of trained workers. In the absence of the nurse, social-service worker, occupational therapist and dietitian, who are generally found in institutional and often in city tuberculosis work, the doctor, the patient, his family and friends must themselves substitute for these workers and perform their duties.

By making the best possible use of whatever equipment and facilities are at hand, however meager these may be, the initiative and resourcefulness of everyone will often be taxed to the utmost. But as a compensation for this lack, a keener interest during the whole course of treatment is sure to be maintained, which interest will often be a determining factor in the ultimate recovery of the patient and his re-establishment in some productive employment. The most permanent and happy results in the treatment of tuberculosis are impossible unless the patient has a normal interest in himself and in life in general. When he comes to feel that he is not needed in the world, that his place has long since been filled, that there is no work peculiarly his own left for him to do, then he has lost faith in himself and in his hope for recovery. The one thing of vital importance in

such case, is to restore as quickly as possible lost faith and confidence, or all other treatment measures will be futile.

The practical value of a hobby as a therapeutic measure during the long, drawn-out convalescences of chronic illnesses has been proved many times. Hobbies are fine all-around tonics for patients "taking the cure," especially for those individuals who are slumping mentally and morally and losing hold on themselves. A patient who does not already possess some hobby or who has no worth-while objective for which to strive, should be helped to find some interest outside of himself. Nature Study is wonderfully well adapted to fulfilling such a mission, since it can be carried on, in one of its many phases, almost anywhere and at any season, and by anyone who has interest enough to take it up. Not a few patients have dated the beginning of their real convalescence from the first efforts put forth to make a scrap-book filled with articles that were of special interest to them, or to compile a book of happy, worth-while quotations.

The great value of prolonged rest out of doors, and in the recumbent position, has not yet been realized by the general practitioner. Indeed, it is safe to conclude that some physicians who are giving themselves wholly to tuberculosis work do not fully appreciate the results that have been produced by the proper combination of bed-rest, fresh air and sunshine in the treatment of this disease.

We believe that experience has proved beyond a doubt that nothing can be considered a safe substitute for prolonged rest in bed, when there are unmistakable signs or symptoms pointing to an active focus of disease present in the lungs. Dr. Joseph H. Pratt's continued insistence upon long periods of rest in bed for his patients until the disappearance not only of fever but of other active symptoms of the disease has proved the soundness of this procedure. His "follow-up" records of patients are most encouraging and show a large number of individuals who not only made a complete arrestment of the disease, but who in addition returned to work and remained at work for many years without serious relapse. Particularly interesting are these cases reported by Dr. Pratt, since so many of them were beyond the incipient stage before they began treatment.

Valuable material of a practical nature on Home Treatment may be found in the writings of Drs. Pratt, Otis, Brown, Miller, Hawes, and others. An article was recently published in the *American Review of Tuberculosis* entitled "Sanatorium Home Treatment Program for the Tuberculous." This paper, written by Dr. H. A. Pattison, Supervisor of the Medical Service of the National Tuberculosis Association, contains standards for home treatment and will

be found most suggestive and useful to anyone interested in this work.

From the broader aspect of treatment, and in its final analysis, "we must all realize that the family is the real basic unit to work with and for: that tuberculosis will continue to exist much as it does today until that time when we can make hygienic, social and economic conditions surrounding the family more nearly ideal; and that the individual is not permanently safe from relapses until family conditions for him are peaceful and helpful. Our home treatment program for the individual is not exclusive but inclusive. It leads up to and intimately touches the family as well as the individual. Good thorough work for the individual is truly constructive work and will very materially aid in the future establishment of more ideal family conditions, accomplishing intellectual, social and industrial rehabilitation where these are necessary."³

In so far as we succeed, on the one hand, in institutionalizing the home with definite measures for health preservation and health restoration, and, on the other hand, in permeating our institutions with the family spirit found in the best home life, in just so far, I believe, will we have adequately solved both the problem of treatment for the active tuberculous patient and the problem of after-care for the arrested case.

Life's values cannot be measured alone in terms of physical strength and material possessions. More truly is its worth to be discovered in nobility of character, self-discipline, and unselfish service for fellow-man. Bodily weakness and physical handicaps are not necessarily incompatible with high moral courage, mental vigor and able service. Human lives, though shattered and broken in body, must not ruthlessly be consigned to the scrap-heap. Like a broken alabaster box of precious ointment they may ever pour out unselfishly of their richness upon those around them. Many such broken and shattered lives can still be mended, and their usefulness and sweetness restored.

In the work of salvaging human lives, no greater opportunity for unselfish service can be found than the helping and inspiring of those individuals who are making the fight against tuberculosis with its tremendous odds. Whether one is in sanatorium or in private practice, it is a thrilling experience to have some of the choice spirits of mankind confess to you that the best thing that ever came to them was that they had tuberculosis, because through the hard schooling that the cure had imposed upon them they had learned some of the deeper lessons of life, and that life is exceedingly precious and desirable even though hemmed about by the limitations of physical weakness.

To the busy practitioner, who has never yet dared to treat the tuberculous at home, may

these thoughts on home treatment open the door to some new and rich experience, and may he know some of the happiest moments of his life as he watches his patient become disciplined in mind, renewed in spirit and strong in body.

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THE SYMPTOMATIC TREATMENT OF TUBERCULOSIS

BY EDWARD O. OTIS, M.D., BOSTON

BEFORE taking up the principal subject of my paper I wish for a moment to refer to general medication in the treatment of tuberculosis. I am aware as I speak of general medication that most specialists and sanatoria have little or no confidence in any drug of a general nature, and I also have held that opinion, but I am not so sure that some medication of a general nature may not be of more or less value. I feel sure that, psychically, such is the case with at least certain classes of patients. There was no more experienced and analytical observer, or one of a more judicial mind, than Dr. Austin Flint who wrote his book on "Phthisis" some fifty years ago. In this treatise he analyzes with the most minute care over 670 cases of pulmonary tuberculosis of which he had kept careful records, and in eighty of these he had post-mortem notes. In considering the general treatment he refers to the three principal remedies in vogue in his day—cod-liver oil, hypophosphites, and alcohol. Of the two former he speaks with but scant praise, but of alcohol he says, "if given in considerable or large quantities my studies have furnished striking examples of its value"—a remarkable conclusion in view of our present-day attitude towards the use of alcohol in tuberculosis, but it may be that in advanced cases alcohol does prolong life. I recall the case of a man who consulted me twelve years ago, who had laryngeal tuberculosis and considerable pulmonary lesions, who lived and continued his active occupation for some ten years, finally dying of an overwhelming hemorrhage. He used alcohol daily during this time in quite considerable quantities, in spite of my advice. Who can say that his daily intake of whiskey did not prolong his life and enable him to continue his occupation?

There is the story of the Englishman who consulted the London specialist and who was told that his case was hopeless and that for the short time he lived he could do anything he pleased. A year later the same man again visited the specialist, and such a remarkable

change for the better had taken place that the latter did not at first recognize his former patient. On being asked what had brought about this great change he replied: "You told me I could do anything I pleased, and the only two things I wanted to do were to drink brandy-and-soda and hunt ducks. I have done the former assiduously and have had my feet wet constantly in duck hunting, and here I am."

It is not my intention, nor is it within the scope of my paper, to discuss medication in the general treatment of tuberculosis. I only want to mildly suggest that certain drugs, like "medicinal tonics," as Dr. Pottenger calls them, may have some value in the general treatment of tuberculosis. "The patient is a human being," says Fishberg, "and when we consider the human element we find that as a rule he has no confidence in a physician who has no remedy for his ailment." "This is not only true of the ignorant," he continues, "but also to the same extent of the supposedly intelligent patient. It cannot be denied that in many respects medications, properly administered, act by psychic suggestion."

It may be well here to recall a report of the Committee on Medication in Tuberculosis, made at the annual meeting of the National Tuberculosis Association in 1907, in which the Committee says that it believes that no directly curative medication has yet been discovered, but that many drugs greatly improve the general condition by ameliorating different symptoms and indirectly limit the extension of the disease or bring about fibrosis. "In view of this fact, the Committee deplores the prevailing tendency to ignore the use of drugs, regardless of their character or special indication in individual cases."

Coming now to my immediate subject, "The Symptomatic Treatment of Tuberculosis," I shall consider briefly the following: (1) Cough; (2) hemoptysis; (3) fever and night sweats; (4) digestive disturbances; (5) pain; (6) depression of spirits.

Cough.—Cough is present in the great majority of cases to a greater or less degree. It has been divided into productive, that is, accompanied with expectoration, and non-productive or irritative cough. Both kinds, however, are really from the same cause, namely, some secretion somewhere in the respiratory tract. In the one case this secretion is abundant and fluid enough to be expectorated by the cough, and in the other it is so scanty or tenacious as to only cause an irritation and cough without results. When the cough is only of a moderate degree no treatment is indicated other than the general open-air régime, for as the general condition improves, so will the cough lessen. It is a mistake, in my opinion, to treat a moderate cough with drugs, although the patient often

begs for some sedative and one may feel obliged and justified in giving some simple remedy or placebo for its psychic effect, but it should contain no opium. Something may also be accomplished by discipline and training in the suppression of all unnecessary and non-productive cough. I well remember Dr. Dettweiler's reply to me when I remarked to him at the general dining-table at his sanatorium in Falkenstein that I was surprised that there was no coughing at the table although I knew they were all tuberculosis patients: "Oh, I tell them," he replied, "that if they cough they cannot come to the table." And this fear of being deprived of the companionship of others in eating had the desired effect. Sometimes by keeping the mouth tightly closed and taking a few deep breaths through the nose, the tendency to cough may be allayed and the explosion avoided. There are other cases, however, and not a few, where the respiratory tract becomes so irritated and sensitive that the cough becomes distressingly frequent, sadly interfering with the patient's rest both by night and day and wearing him out by the excessive exercise; for coughing is hard and exhausting work. I often tell my students to make themselves cough continuously for five minutes and then they will realize the effort and strength expended in coughing. Such a condition is a serious menace to the patient's chance of arrest and something more will have to be done than the open-air treatment alone. Furthermore, paroxysms of coughing not infrequently result in emesis, the so-called "emetic cough"; but of this I shall speak later. One at first tries various simple remedies such as chloroform water or tablets, lactucarium, acacia, flaxseed tea, and some of the sedative syrups, that of almonds or wild cherry, or other mild innocuous remedies which readily suggest themselves. Inhalations or sprays are serviceable if the upper respiratory tract is irritable. Occasionally creosote or its derivatives may be of aid, and I recall two cases in which very striking results were produced by the use of creosote. External applications such as mustard plaster, iodine, or even a small blister are other expedients. Failing with these simple remedies,—and with a considerable number of patients they will fail,—some form of opium will have to be employed, as the lesser of two evils, if we are to secure to the patient the benefits of the open-air treatment and needed rest.

One must, however, always bear in mind this wise advice of Dr. Flint: "Cough palliatives," he says, "containing opiates are in general hurtful. They are allowable only when the violence or frequency of cough causes fatigue and prevents sleep. They are allowable or advisable then because, although an evil, they are the means of relieving a greater evil."

Obviously, the milder derivatives of opium should be chosen. In my experience I have found codein the most desirable one in one-eighth or one-quarter grain doses; others use heroin or dionin. If possible, the opiate should be given only at night and it may secure to the patient several hours of quiet, restful sleep. If used during the day it should be given only intermittently, and omitted as soon as the cough improves. In incipient or the earlier cases this condition of frequent and harassing cough is less likely to occur and, if possible, one should endeavor to mitigate it by other means than opium. It is generally in the advanced cases that one meets with this distressing symptom which demands the opiate. One must always bear in mind the danger of habit-formation in employing any form of opium. In the so-called emetic cough, mentioned above, where violent paroxysms of coughing, soon after eating, excite emesis and the loss of the meal, one is confronted with another serious result of coughing which demands careful attention. The meal most frequently lost is breakfast, and when this occurs, my practice is to give the patient, on awakening, a hot drink of some kind—a cup of coffee or tea, hot milk or a warm alkaline drink. This will usually excite the coughing and the elimination of the accumulated secretions and subsequently breakfast may be taken with less likelihood of losing it. Again, one is advised to substitute several small meals during the day instead of the three more abundant ones, and to lie down immediately after eating and remain perfectly quiet. Sometimes a piece of ice in the mouth is of value. Of medication, good results have been obtained from chloroform, a few drops well diluted, or cocaine, before meals. Martinet and Kuss report the most favorable results from menthol, when taken after eating, in solution. As a last resort, codein or heroin may have to be resorted to, taken an hour before meals. If the cough seems to be caused by laryngeal irritation, the inhalation of various medicated vapors or sprays may afford relief, such as alkaline solutions, menthol, eucalyptus, camphor or creosote in liquid, abalone or petroleum. The following can also be employed by means of a perforated zine inhaler, the medicament being dropped upon the sponge of the inhaler: R Menthol, grs. v; Alcohol, Creosote, Chloroform aa 5 iiss, five or ten drops to be used at a time for from a few minutes to half an hour or more. A local application of iodine and iodide of potash in glycerine can also be applied to the pharynx every day or every other day.

Hemoptysis.—Hemoptysis, as we know, may be the first and last event in a case of tuberculosis, and may occur all the way between. It may usher in the disease, so far as the patient knows, and it may usher the patient himself

out. In early or moderately advanced cases I have never seen a fatal immediate result, and in advanced cases with cavity I have rarely if ever seen anything but a fatal result. Various pathologic or physiologic conditions are assumed as exciting causes—hypertension, hypotension, congestion, ulceration, etc. In the serious or fatal cases a common cause is the rupture of an aneurysmal dilatation of a vessel crossing a cavity, occurring commonly in far advanced cases. In other cases active or passive hyperaemia, acute congestion, or the rupture of a blood vessel, however small, which has been weakened by the presence of tuberculous disease in its walls, are the exciting causes.

In the vast majority of cases of hemorrhage in the early or moderately advanced stages, the bleeding would subside without treatment except, as Dr. James Jackson long ago said ("Letters to a Young Physician," 1855), "rest of body and mind and holding the tongue, which," he remarks, "are quite as important at the moment of the bleeding as the medicinal articles," but we do not dare to trust to nature on account of the fright of the patient and his entourage. Treatment is demanded by them. The conventional treatment is rest in bed, ice, cold food, and opium, and I doubt if any of these are essential except rest, and that for a less time than is usually considered safe. How many cases of hemoptysis occur when the patient pays very little attention to it and keeps on in his usual course of life without rest and treatment, and the bleeding subsides as quickly as it would if he had taken the regular treatment. Still, as I have said, we must treat hemoptysis or lose our patient, not from a fatal result in the earlier cases, but from the loss of confidence in us by the patient and his friends from our *laissez-faire*.

Furthermore, the loss of a considerable amount of blood is of course a debilitating influence in an individual already weakened by the disease. I do not see the necessity for keeping the patient in bed for any fixed period. When the sputum has been blood-free for a few days he can get up and walk about the room with safety, I believe. Neither does it seem to me that it makes any difference exactly what position the patient assumes in bed, whether it be the semi-reclining or recumbent. The patient can be left to take whatever position is most comfortable for him. As to food, other than hot drinks, I see no reason why the food should be cold, as usually advised. It seems reasonable that, at the first, food should be given rather sparingly. Ice by the mouth and ice bag on the chest is something visible to do, but I have never been convinced that it is of any value. If there is comparative hypertension, as shown by the sphygmomanometer, the nitrites would appear to be indicated, and there is evi-

dence enough to prove their value. Nitrite of amyl, nitroglycerin or sodium nitrite may be employed. The more rapid in its effect is the nitrite of amyl, as we know. If there is evidence to indicate hypotension, adrenalin or pituitrin by injection is indicated, and there is again evidence to show that they have been of value. In the one case we desire to reduce the arterial pressure and favor clotting, and in the other case to increase it and favor vasoconstriction in the supposed passive venous congestion. In the former condition, that of hypertension, my custom is to get a full dose of salts within the first twenty-four hours. Probably some opium will have to be given both to allay the nervous phenomena and the cough, for "cough," as Packard says ("Mechanical Factors in Hemoptysis," *American Review of Tuberculosis*, vol. vi, No. 8, 1922), "suddenly and markedly raises the intrapulmonic air pressure which would dilate the bronchus and thus dislodge the forming clot." As little opium as possible, however, should be given and, preferably, some of its milder derivatives. Codein is the one of my choice. Morphine often given in large doses is, I believe, not only unnecessary in most of the milder cases, but often productive of harm, for it may lead to aspiration pneumonia. Various other remedies have been recommended, such as the lactate or chloride of calcium, fresh blood serum of the horse or rabbit, fibrogen, hemostatic serum, thromboplastin, and so on, but it is doubtful if they are needed in the ordinary cases of hemoptysis.

When the hemorrhage occurs in the advanced stage of the disease from a ruptured aneurysmal vessel in a cavity, the prognosis is grave and the result generally fatal. Of course the various remedies mentioned can be tried, but the only efficient means of stopping such an overwhelming hemorrhage is artificial pneumothorax, and for such an emergency, Murphy, quoted by Fishberg, says, "This can be done with a subcutaneous needle. The sharp point of the needle is rubbed dull on a brick and inserted into the pleural cavity of the side from whence the hemorrhage is supposed to come. A piece of absorbent cotton is placed over the outer end of the needle and the finger held over this. When the patient inhales, the finger is removed and when he exhales the finger again covers the end." This seems very simple, too simple almost to work. I have never tried it. I need hardly mention the well-known experience of salt and the ligation of the extremities. It is well to repeat that all ordinary hemorrhages cease of their own accord in most instances. Many remedies and procedures have been recommended and all have been more or less successful in the hands of those who have recommended them because of the general fact that

the hemorrhage ceases of its own accord and the remedy gets the credit.

Fever.—Fever in tuberculosis is the result of the active process of the pulmonary lesion producing toxemia. As in all active infections, fever is one of the constant concomitants of the toxemia, and the only way to eliminate the fever is to stay the process, and our one great means of doing this is by rest—absolute bed rest. All authorities are agreed that no other means, with one exception which I shall mention later, will permanently do this. No drugs can change the general condition of activity. They will only give an ephemeral, deceptive remission. The fever may last long, indeed may never subside, but the only chance is rest, and this may have to be continued for many months. I recall a case where the patient had absolute rest in bed in a sleeping porch for nine months, and then finally the fever was conquered, never to return. In my experience I find that the supreme importance of absolute bed rest in fever is not always fully realized. The patient is allowed to get up and sit in a reclining chair, for example, to go to the bathroom, etc. This is not complete immobilization—"typhoid rest," as Paterson calls it. Paterson goes so far as to prohibit talking or any active movement of the limbs on the part of the patient. I mention this to indicate how extremely important those of long and large experience regard this absolute rest in fever. The best conditions for carrying out this rest or immobilization in fever cases is in a sleeping-porch or in a large, well-ventilated room with some sunshine, and a nurse trained to the appreciation of the importance of this immobilization in all its minute details. One naturally asks, what degree of temperature demands immobilization? This depends largely upon the difference between the morning and the afternoon temperature. The patient with a subnormal temperature in the morning may have an afternoon rise of but little more than the usual normal temperature and yet the difference between the two may indicate fever. If, however, the morning temperature is normal, a constant afternoon temperature of 99.8 or over calls for bed rest. After the temperature has subsided for several weeks, then the patient can begin to move about a little, but this should be very cautiously undertaken and very slowly increased. There are cases with which we all, unfortunately, have had experience in which no cessation of the fever occurs after long immobilization, and such cases seem to progress rapidly toward a fatal result. In such conditions of long and constant fever and evident rapid progress of the disease, artificial pneumothorax offers us a chance, and I have seen it turn the scales in the right direction and cause a disappearance of the fever and acute symptoms, and the ultimate arrest of the dis-

ease. As I have said, no antipyretics are of any permanent value in the fever of tuberculosis, but one drug I have occasionally employed for three purposes: (1) The fever may cause the patient great discomfort, headache, backache and general malaise. To relieve these symptoms even for a short period is worth while provided no harm is done. (2) Frequently the fever may produce anorexia and if we can by artificial means reduce the fever for a day or two even, the appetite may return and something has been gained thereby; and (3) I sometimes think that if the temperature can occasionally be held down for even a short time the resistance may be improved and there is more likelihood of a permanent diminution of the temperature. The one drug I employ for this purpose is pyramidon in five or ten grain doses in the form of tablets, a single dose in the twenty-four hours. It is also combined with camphoric acid under the name of pyramidon acid camphorate, thus fulfilling two purposes—a temporary reduction of the fever and an amelioration of night sweats, the usual accompaniment of the fever. In brief, in the majority of the cases of fever absolute rest under open-air conditions will eventually bring down the temperature if patiently persisted in. If in a few cases, after long trial, the fever still persists, then as a last resort artificial pneumothorax is to be considered if the lung can be successfully collapsed. The result is often most striking—the fever disappears, and with it the other unfavorable symptoms.

Night Sweats.—I have spoken of night sweats as the accompaniment of fever. When the fever disappears, the night sweats disappear, but in themselves they are very enervating and discouraging and call for attention. Besides careful arrangements for open-air sleeping without too much covering, there are various procedures which will aid: A glass of milk with several teaspoonfuls of brandy on retiring, first suggested by Brehmer, I believe; bathing the patient with water and vinegar on retiring; observing the time when the sweating begins and waking the patient a little before this time and repeating the milk-and-brandy, or an ounce of whiskey. If the sweating occurs the night clothes should be replaced by dry ones. Of drugs I have found two the most useful and with the least harmful effects, namely, agaricin, 1/10 of a grain an hour or two before bedtime, and camphoric acid, 20 to 30 grains. I have already referred to the combination of this drug with pyramidon under the name of pyramidon acid camphorate.

Digestive Disturbances.—The proper feeding of the tuberculous patient and the care of his digestion is obviously one of vital importance. "The consumptive who does not eat," as someone has said, "is doomed." How shall we feed our tuberculous patient, and what changes shall

be made in his diet in order to ensure the maximum nutrition? In a word, if the digestion is normal, an ample mixed diet in three daily meals fulfills all indications. "Ordinary everyday food," says Sabourin, "is sufficient in the treatment of three-quarters of all tuberculosis patients." "If such food proves unsuitable," he continues, "the patient must have some local or general trouble which is at the bottom of the difficulty." Because a patient has tuberculosis and some digestive disturbance it does not follow that the latter is caused by the former, but the digestive disturbance becomes more serious because it affects unfavorably the tuberculosis, hence the importance of correcting the faulty digestion. It has been the custom, and is all too much so now, to order milk and eggs as a routine measure when active tuberculosis has been diagnosed; many a fairly normal appetite has been greatly impaired, if not destroyed, by the inordinate quantity of these two articles of food which the patient is told to take, or thinks he must take. To surfeit one with any article of food causes a great repugnance to it and is likely to destroy the appetite for any other. Eggs and milk are excellent articles of diet when taken in moderation with other food, if the patient has no antipathy to them. When, however, three good meals can be taken with a moderate amount of meat, supplementary doses of milk and eggs are, in my opinion, unnecessary. Milk and eggs in abundance are for those who do not eat well or cannot take other food. The ordinary diet, however, must be well served, well cooked and appetizing, and not monotonous. Every well-ordered sanatorium has its dietitian both for properly arranging the ordinary diet, as well as for special diets for the digestively lame ducks. In private practice the physician must be his own dietitian, and something more is demanded of him than simply directing the patient to eat well and take plenty of milk and eggs. He must carefully supervise the menu and keep a close watch upon the amount of food the patient takes. Walther, the German specialist, always served his patients himself at the table, and saw to it that they ate what he gave them. It is well to bear in mind Dettweiler's saying, "My kitchen is my pharmacy." A word in regard to cod-liver oil as an auxiliary food when such is needed: Recent researches have shown that cod-liver oil possesses to a high degree fat-soluble vitamins, and hence its value over other forms of fat when it can be taken without gastric disturbances. The routine ordering of between-meal lunches when the patient is eating his three meals well is unnecessary and not infrequently is destructive of appetite.

McCann (*American Review of Tuberculosis*, vol. v, 1921-1922, p. 870), who made a study of the basal metabolism in tuberculous patients,

says that the reduction of the vital capacity of the lungs which occurs in active tuberculosis is a protective mechanism, and such a diet should be selected as will make the least demand upon the respiratory mechanism—provided, of course, that the diet is sufficient for the general nourishment of the patient. "High protein diets," McCann finds, "greatly increase the metabolism and consequently enlarge the demands upon the cardio-respiratory mechanism," a condition we desire to avoid in our rest treatment. On the other hand, "the effect of a carbohydrate rich diet is to increase greatly the breathing volume," again a condition we desire to avoid. On the other hand, fat is metabolized with the greatest economy of respiratory function. McCann concluded "that a satisfactory nutrition may be attained by the use of moderate quantities of protein (60 to 90 grams per diem), with the use of fat up to the limits of digestive capacity, and sufficient carbohydrate to bring the total calorie value of the diet to from 2500 to 3000 calories. Such a diet will produce the least demands upon the function of the damaged lungs. From the standpoint of diminishing the specific dynamic effects of foods," he continues, "there is an advantage in dividing the diet into more than three meals."

In fever no change in the food should be made, but the full ordinary diet given. If anorexia exists, caused by the general toxemia of the disease, rest in the open air, with careful attention to the diet, will generally restore the appetite. If drugs are indicated, some of the bitter tonics, such as nux vomica, gentian, cinchona, cardamom, or the hypophosphites with strychnia may be employed. If there is hyperacidity alkalies are indicated or, if achylia, hydrochloric acid and pepsin. Fishberg highly recommends creosote for anorexia. I may interject here that in very many of the disturbances of the digestion the regulation of the diet, constant open-air life and attention to the details of the general treatment will often bring about favorable results without recourse to drugs. In combating constipation, so common in the tuberculous, every effort should be made to obviate it by the diet; for example, adding various kinds of fruit, bulky vegetables, and plenty of water. "The patient who is willing every morning," says Sabourin, "to devote fifteen minutes of his time to the exclusive purpose of securing a bowel movement, will be quite surprised to find after a few days that he is getting the desired results." If, finally, drugs are to be used, cascara, agar-agar, and compound licorice powder are some of the most useful and harmless. Of the various gastro-intestinal disturbances, such as distention after eating, flatulence, pain, nausea, simple diarrhea, etc., these must be combated by the regulation of the diet or special

diets and appropriate medication, as in such conditions unaccompanied by tuberculosis.

In treating gastro-intestinal disturbances it is always well to bear in mind the possibility of intestinal tuberculosis. If this condition is suspected the x-ray will afford valuable aid. In spite of various gastro-intestinal disturbances, the patient must be importuned to eat, and eat enough. I often say to the patient that he has but one stomach, however incompetent he thinks it is, and, therefore, if he is to overcome his disease he must make the best of his poor digestive apparatus. I tell him to go into the market and look at a piece of tripe—the interior of an animal's stomach—and observe its tough consistency. I tell him his own stomach is like that, capable of doing good, hard work, although it may sulk at times. Therefore, he must keep this organ at work by putting into it sufficient food, and when it realizes that its work—digestion—is to be done it will quietly settle down to its task.

No pains or effort are too great in securing a sufficient intake of food and satisfactory digestion and assimilation. Neither open air, rest, nor any change of climate will avail if this fails. The tuberculous individual who is not properly nourished cannot expect to overcome his disease.

In the various nationalities with which we have to deal, both in the sanatorium and in the treatment at home, attention should be given to the kind of food and its preparation which the foreigner has been used to. How frequently it occurs, for example, that the Russian Jew refuses to go to the sanatorium because, as he says, he cannot get "his kind" of food to which he is accustomed. A study should be made of the peculiarities of material and the preparation of the diet of different nationalities, and this knowledge should be used in providing, so far as possible, such manner of food as the Jew, the Italian, the Armenian, etc., are used to. One has only to try and partake of a meal prepared by any of these foreign folk to realize how strange and unappetizing our kind of cooking seems to them.

Pain.—The last two symptoms to which I shall refer, and which deserve a brief consideration, are pain and depression of spirits. In my experience pain in the chest is a very frequent occurrence with the tuberculous. One will complain of a pain in the chest, sometimes extending into the shoulder, as the only symptom and the one which brings him to the physician, and which causes him to be apprehensive that he is tuberculous. Generally this pain is confined to the upper chest, front or back, sometimes on one side alone and sometimes on both sides. Various causes have been adduced as the pathogenesis of this pain, such as a localized pleurisy, neuralgia, muscular rheumatism, and diseased lymph nodes. Most of the patients

who complain of chest pain, I have observed, are more or less neuropathic. I have rarely been able to find any underlying cause for this pain, or any physical evidence of tuberculosis when it is the only symptom complained of. My experience coincides with the conclusions of Langstroth, quoted by Fishberg, that this hyperalgesia is practically of no importance in diagnosis or in localizing pulmonary lesions. As to treatment, there are various external applications that may be tried,—a mustard paste, iodine, a belladonna plaster, heat, and dry cupping. Of internal medication, if any is required, the most useful, in my experience, are the salicylates, aspirin or phenacetin. Opium in any form is rarely required.

Depression of Spirits.—Every physician who has had much to do with tuberculosis realizes the importance of the mental attitude of his patients while taking the "cure." Many patients, as we know, develop an excessive optimism, while others are given to despondency or depression of spirits. To obviate this latter condition and to prevent the patient from brooding over his disease, various diversions are employed in the sanatorium,—music, moving pictures, occupational therapeutics, etc. The Municipal Sanatorium of Chicago employs a director of music and recreation. The personality of the physician has as much or more to do in relieving the ennui and mental depression of the patient than any other instrumentality, provided he has the patient's confidence and possesses some knowledge of psychology. A heart-to-heart talk with his physician in which the patient is given time to unburden his heart will often bring relief. Sometimes tenderness and sometimes firmness is indicated. "Hope springs eternal in the human breast," says the poet, but often this hope has to be watered and tenderly nurtured in order to spring forth, and no one can do this so well as the sympathetic and wise physician. Occupational therapeutics have of late come into prominence as an effective psychological influence in relieving the patient of his despondency, and their value is great. The reading of poetry or simple tales of an unstimulating nature is another device for driving away worry; simple games, sketching, study of flowers or other forms of vegetable life, are other means. Often one's hobby or taste is of such a kind that one can pursue it in his reclining chair. An active mind, even when the body is at rest, must have something to occupy it, or it may turn to introspection and despondency. After all that I have said, the most potent influence in dispelling gloom, inspiring hope, and stimulating courage is the physician himself. Thousands of their former patients venerate the names of Trudeau and King, whose beneficent presence, sympathy, and optimism rescued them from the depths of despair, and led them to the

Promised Land of recovery. They healed not only the sick bodies of their patients, but their broken spirits as well. "In his hour of need," says Dr. Trudeau in his address on "Optimism," "the patient has no means of judging of the physician's intellectual attainments, but it is the faith that radiates from the doctor's personality that he seizes upon and that is helpful to him. Any encouragement that emanates from the physician will help keep up the patient's courage and carry him through the long days of illness and suffering to recovery, and when recovery is impossible, if the doctor's optimism, that is, if his faith is of the kind that extends to the future, not only here but hereafter, it may dispel for the patient much of the darkness and despair which brood over the end of life and, perhaps, even illumine for him that vast forever, otherwise so shrouded in impenetrable gloom."

DISCUSSION

DR. FRANCIS E. O'BRIEN, Haydenville: In opening the discussion of the papers presented today, I think that we must all agree that we have listened to some very interesting papers. The subject-matter, namely, the Treatment of Tuberculosis, has been covered from every angle. One very interesting suggestion brought out in Dr. Emerson's paper should be considered carefully, and further study of the points mentioned should be undertaken. There is a need for a law or plan by which suspected cases of tuberculosis, who have been examined at clinics and who are classified as suspicious, can be admitted to our sanatoria for observation. These patients would thus benefit by further study of their respective cases, and at the same time the educational benefit to the case would indeed be great. The case would not be branded as tubercular until a positive diagnosis was made while under observation. At the present time in most of our towns and cities a positive sputum is required before the case is admitted. This action on the part of the various boards of health does not insure the early admission of cases. In short, we receive for the most part, advanced cases. The general hospital admits patients for observation. Why shouldn't we have the same privilege? We surely could do more justice to this class of cases and thereby add a much-needed increase of morale among our resident patients. This method would augment our clinic work, and at the same time bring our sanatoria nearer to the public.

In the sanatoria for treatment of adult tuberculosis we cannot consider that we are receiving many, if any, incipient cases of tuberculosis. The reason is apparent when we consider the fact that a positive sputum in most instances must be procured before the admission of a pa-

tient. We are not helping the tuberculosis situation by this procedure. The only way we are helping at the present time in sanatoria for adult tuberculosis is in isolation of the sick from their families. Of course this is a great help, but it could be greater, and better results obtained if we had the privilege of admitting suspects. At the present time the only true incipient cases of tuberculosis are at the Westfield State Sanatorium, this institution being for children only. It is very hard to find many cases that one might classify as incipient at our adult sanatoria. We could show better results if we had better risks to treat instead of cases that arrive in the majority of instances a short while before the flowers and the surprised relatives. The Public Health worker, regardless of this position, who waits for a positive sputum to appear in cases of tuberculosis before trying to admit them to sanatoria, is helping the tuberculosis situation only in one way. He is isolating that case; but why wait until the disease has advanced far enough to be an open case? Of course he is isolating a case that is regarded as a menace to the public. But why wait until that patient becomes a menace? A few weeks' time may mean a greatly different prognosis in many cases.

Dr. Emerson has found that the omitting of lunches at the Rutland State Sanatorium has evidenced a greater gain in weight, and less digestive disturbances have appeared since the inauguration of this system. The matter of lunches must be explained more fully. Of course the routine giving of lunches without prescription by the physician in charge would be foolish. The bed patient, however, with impaired digestion very often needs smaller amounts of food at more frequent intervals, and I am of the opinion that this system in that class of cases is an aid to digestion and permits of proper assimilation of the smaller amounts of food more frequently given. At Hampshire County Sanatorium we permit all ambulatory cases to have milk between meals, regardless of prescription, but should digestion become impaired, this is dispensed with. Bed cases are fed light lunches between meals at fixed intervals, and I should hate to manage without this system.

Home treatment has its place, as the doctor has very satisfactorily outlined. The multitude of conditions, such as proper environment, financial circumstances of the patient, his attitude toward the disease itself, his willingness to obey instructions outlined by his physician, and the interest displayed by the physician himself—all have their influence in the effectiveness of any home treatment program. Dr. Shields has presented us with a remarkably well-thought-out paper.

Colonel Bushnell's paper may be considered

a paper from a pioneer in the tuberculosis field. His illustrations of cases brought to mind, illustrate definitely the value and importance of securing the patient's confidence in the management of any particular case. The need of individuality in treating cases of tuberculosis cannot be too strongly impressed upon the workers in tuberculosis. Dr. Bushnell has well illustrated what can sometimes be done, even in advanced cases, and illustrates the work of properly applied psychological treatment and its influence upon the patient.

Dr. Otis, in his paper on Symptomatic Treatment, has impressed upon us the importance of treating symptoms as they arise, and the favorable impressions made upon the patient by correcting trivial ailments as they arise. The effect of attending to a non-productive harassing cough, and its influence on the patient's general condition, and other very interesting points have all been well considered.

All of the papers have been very interesting, and each presentation has dwelt upon the aspect of tuberculosis treatment assigned to each speaker. This is, indeed, a very hard thing to do, and all must be congratulated upon their renditions of their respective topics of tuberculosis treatment.

DR. HENRY COLT, Pittsfield: I think I have very little to add to the discussion today. I quite agree with Dr. Otis in reference to some symptomatic treatment, but I think nine out of ten patients usually demand some form of medicine, and I think there is a psychic element in it. They feel that if we can give them something to take, they are mentally encouraged; they are being better looked after than if they are taking nothing.

There have been so many valuable points brought out in these papers. The question has been raised as to the length of time the patient must stay in bed. Sometimes it is a difficult question to answer; but I think we err on the wrong side in not keeping them in bed long enough. I know of a recent case of a young man, treated in Asheville, who was kept in bed nearly ten months, almost absolutely still. He is now well as far as any physical signs go. He had been kept absolutely on his back, and even denied the toilet facilities.

I was very much interested in Dr. Emerson's suggestions about the use of food. I should be very glad to try it out, omitting some of the luncheons, especially in the way of eggs, and of the quantity, for it might materially reduce our sanatorium expenses! As to the doctor who referred to the home treatment and the tactics of the Chinese general who wished to have the enemies put in good condition and then brought to him for destruction,—it seems to me that the answer has begun when they are brought to our

sanatorium: we are to complete their destruction. It is difficult for me sometimes to be optimistic about a very advanced case of tuberculosis, and I believe, with the doctor from Hampden, that the majority of cases we see here in our sanatorium are so advanced that there is to be very little hope of recovery. We have a very small sanatorium for incipient cases, and we try to give more hope that those people are going to get well.

DR. H. D. CHADWICK, Westfield: While this conference is very instructive to us interested in tuberculosis, it is the men who don't come to these conferences that ought to hear some things that are said. Why would it not be a good plan next year in some way to get a paper on the diagnosis of tuberculosis into the medical section, and then lock the doors and let them hear it? It might be better, perhaps, not to have it on the program, but have it introduced unannounced. It is the general practitioner who ought to hear some of the papers on the diagnosis of tuberculosis.

To prove that statement—last week I had a patient come to me from one of the cities of western Massachusetts, the wife of a bank official, thirty years of age, who last July began to cough. Her mother and brother died of tuberculosis; for that reason she was on the watch for it herself, and consulted the family physician very frequently. He had her chest examined after she had symptoms, and was informed that there was nothing wrong with her lungs. She was referred to a throat specialist, who said there was nothing wrong with her throat. As the cough continued, the practitioner called in a surgeon, who also said there was nothing wrong with her lungs. Two weeks ago, through a friend, she went to some one in Boston and was told that she had tuberculosis; this was confirmed by an x-ray which showed an advanced tuberculosis of both lungs. She came to me for advice, and she is now in the condition where the prognosis is extremely poor, although every effort was made by her to forestall the disease. The trouble was that she did not go to physicians who were able to recognize early symptoms of pulmonary tuberculosis.

In spite of all the propaganda that has been carried on, such things now exist,—physicians who don't know how to get a patient into a state sanatorium. Can't we get some of this information before the Medical Section at some future meeting?

My point is that they won't come to our meetings, and that we should go to them.

DR. E. O. OTIS: There are various forms of pulmonary tuberculosis in which hemorrhage occurs. There is the chronic fibroid type occurring generally after middle life. Hemor-

rhage occurs, not infrequently, in these cases and recurs, but there is no evidence of local activity at the time nor does any evil result follow. Then we have the hemorrhages at any stage of the common casea-fibrous type—which is the form in which hemoptysis most frequently occurs.

There are other cases occurring in the apparently well where neither the physical examination nor the x-ray reveal any lesion in the lungs. The sputum is negative and there are no symptoms. A case of this kind came under my observation a short time ago. A physician, who, so far as he knew, was perfectly well and attending to his usual duties, suddenly had a small hemorrhage, which recurred several times. The physical examination, the x-ray, the sputum, and laryngological examinations were all negative, and there were no suggestive symptoms of tuberculosis. The psychic effect, however, was quite marked and interesting. By continually dwelling upon his hemorrhage and worrying over it, he finally thought he did feel sick, and began to treat himself. With no ascertainable evidence in such cases one can only conjecture as to the cause. We say it means tuberculosis, but we cannot prove it.

DR. L. A. ALLEY, Rutland: It seems to me a good many interesting and instructive points have been brought out this morning. One that impresses me more than any is the education of the patient. Considerable progress has been made in the last few years with the treatment of tuberculosis, by educating the patient. It seems also that this should be carried along not only during the period that he is actually sick or, possibly, just getting on his feet, but continuing during his convalescence. As Dr. Shields has said, he should not be sent out to his execution. He should be assisted in drawing up his program of what he intends to do after he gets on his feet, especially after leaving the sanatorium, in order that his convalescence should not be cut short by a recurrence of his trouble. He should be encouraged to return frequently for advice and assistance.

In connection with the rest treatment, it is interesting to know that this has been applied to the laryngeal cases. These cases have been helped to a great extent by absolute rest of the larynx. Certain chronic advanced cases go along with only such symptoms as cough and expectoration. Every so often they have a little hemoptysis, two or perhaps three or four ounces. I have seen cases who give a history of tuberculosis for ten or fifteen years, and the only trouble they have is that they spit up a little blood from time to time.

I would like to ask Colonel Bushnell what he believes is the significance of the raising of small amounts of blood in these cases, with no

other symptoms appearing and the clinical findings remaining unchanged; also his management of these cases as compared with the treatment of active cases of tuberculosis with hemoptysis; also, does he believe that hemoptysis in the chronic inactive cases, as above mentioned, necessarily means an acute exacerbation of the quiescent tuberculous process?

COLONEL BUSHNELL: Hemoptysis does not, of course, necessarily indicate the presence of tuberculosis. There may even be hemorrhages from the lungs of arrested cases of tuberculosis which are of a non-tuberculous nature. All hemorrhages which originate in the lungs are followed by moist râles, which last about ten days, more or less. These râles are probably due to the irritation of the bronchial mucous membrane from the effused blood. After the blood has disappeared from the air tubes the lungs in an arrested case of tuberculosis are dry. The persistence of localized small or medium-sized moist râles for a period of more than two weeks creates a strong suspicion of the presence of an active tuberculous process. Cardiac causes for the hemoptysis being excluded, pulmonary hemorrhage not due to tubercle is to be ascribed to the condition of faulty metabolism which is rather vaguely known as arthritism. It is especially apt to occur in persons of advancing years. Much harm may be done such patients if tuberculosis is assumed from the fact of hemorrhage or from the presence of râles soon after the hemorrhage and the routine treatment of stuffing and rest is resorted to. The life of the patient is frequently shortened, but he dies of cardio-renal conditions, and the hastening of his demise is not ascribable to tuberculosis, but to the treatment for tuberculosis.

DR. EMERSON: I want to emphasize the value of rest in bed, particularly in the early and acute type occurring in young adults.

These cases need far more intensive treatment than the chronic cases of several years' duration.

I do not believe the early case in the young adult should be allowed out of bed with the subsidence of symptoms. They should be kept in bed for several months with normal temperature and pulse. In the long run time is saved and a foundation is laid for building up a resistance to the disease. A relatively short period of rest in bed, however, is sufficient for the chronic type with a reactivation. Dr. Alley referred to laryngeal rest.

It is amazing what absolute rest of the vocal organs will do. A case in mind is that of a young man with an ulcerated lesion, who was instructed not to use his voice even to whisper, but to depend on a pencil and pad. The lesion healed and has remained so for a year.

Such treatment, however, requires a determination to get well and coöperation not easily secured in the majority.

DR. E. R. KELLEY, Massachusetts Commissioner of Health: I feel the hour is so late that I can't say much. I could not help but feel impressed with the papers and the discussions which have been given; in fact, the old verse came to me, "It is good for us to be here." I care not how much experience one may have had, I defy anyone not to have heard a great many useful and suggestive observations during the course of the papers, which have been unusually good.

There is the same old story that lies back of it; we have struggled a long time with the public; but now the question is how to get at the general practitioner. I think it would be a splendid idea to try out Dr. Chadwick's suggestion to move in force on the general session next year, enforced by some extra-spectacular performance—whether to have the Managing Director of the National Tuberculosis Association stand on his head, or something of that sort, to get the attention of the rank and file of the profession, or what other publicity stunt is indicated, I am uncertain. But we would need a very remarkable and unusual meeting to attract the attention of most of the general practitioners, I fear.

Book Review

Arboreal Life and the Evolution of the Human Eye. By F. TREACHER COLLINS.

This is an enlargement of the Bowman lecture given in 1922. In the introduction Collins points out the quality of vision required by the different types of mammals. The herbivorous terrestrial mammals require a wide range of vision, well-developed smell and hearing, to allow them to detect danger over a wide area, and a capacity for seeing in a dim light. For the carnivorous animals, which track their prey, binocular vision is a necessity, and also the ability to see fairly well in a dim light. For the arboreal mammals acute stereoscopic vision and good color vision is a necessity, while their arboreal refuge does away with the necessity of seeing well in a dim light. Man having descended from the trees, has by his needs obtained increased precision of his visual organs.

Thus the visual requirements needed for different forms of environment have resulted in different forms of architecture of the visual organs.

Chapter 2 deals with the field of vision. In animals needing a large monocular field, the eye is set well out from the head, and in some the outer wall of the orbit may be incomplete. The enclosure of the bony ring of the orbit in primates steadies the movement of the eyes in the interest of binocular vision. A large cornea increases the size of the field of vision and the clearness of peripheral objects; thus in some rodents the cornea comprises nearly half the surface of the eyeballs, while in the primates the cornea reaches its smallest relative size. In the same way, and largely for the same objects, the lens decreases in size; thus in primates the cornea and lens are so constructed as to sacrifice the monocular field in the interest of acute central fixation.

In unguata the increased lateral diameter of the cornea, the horizontally enlarged pupil, and the extension of the retina forward on the sides are in the interest of the extension of the monocular field. Animals requiring panoramic vision have their eyes set laterally in the head. In the hare, the optical axis is 85 degrees from the middle line. The movement of the axis towards parallelism is in the interest of binocular vision. It is interesting to note that in the human embryo the optic vesicles, at first opposite to one another, gradually turn, and before birth become parallel. The recession of the snout, no longer needed for purposes for which it was originally intended, goes hand in hand with the position of the eyes.

Conjugate movements of the eyes are present in the carnivora, while monkey and man have a highly developed spot of central vision and highly developed powers of convergence and accommodation. Together with the increased central vision in arboreal life, which man has retained after coming down from the trees, goes the increased field of fixation; the ability to bring the fovea to bear on objects in a wide circumference has been accomplished by increased mobility of the eyeballs and of the head.

In primitive animals sight and hearing were poorly developed compared to the sense of smell. The least developed eyes are found in nocturnal animals, which have only rods in their retinae. The various aspects of rod and cone vision are then described according to environment. Cone vision is most highly developed in the diurnal rapacious birds. Supplementary means have been developed to fit an environment having low degree of luminosity. Some deep-sea fish have evolved their own illuminating apparatus. Some fish and animals have a reflecting membrane, the tapetum lucidum, more or less completely developed. Monkey and man have no such reflecting device; the former because he is safe in his arboreal abode, while man became a cave-

dwelling animal, and finally discovered fire. In mammals more or less sensitive central areas are met with, but only in primates is the fovea well developed. It is also found in some reptiles and in practically all birds. The depth of the fovea may be regarded as the measure of the sharpness of vision. The normal fovea is especially deep in swift fliers and in birds of prey.

Increased capacity for accommodation and for convergence is intimately associated with foveal development and with the adoption of arboreal life. The accommodative power is greatest in man, slightly less in apes, and very considerably less in all the lower orders. This is well shown in the development of the ciliary body. The rudimentary ciliary body has only longitudinal muscle fibers. Man's eyes at birth are comparable to those of terrestrial mammals in the natural state who have not adopted arboreal life. His lenses are nearly spherical and his vitreous chambers of comparatively little depth. Vision is adapted for long distances with little capacity for focussing near objects. By expansion of the globe, flattening of the lens, increase of the vitreous in depth, man's eyes gradually reach the condition most suitable for his environment. If vision becomes restricted to short distances then myopia develops, as it will also in the lower mammals confined to small compartments.

A rudimentary color sense is present in some dogs, but is weak, and this is probably true for some of the other mammals. It is probable that the color sense in monkeys is the same as that in man. The perception of small colored objects is essential to the existence of arboreal animals which live mainly on the fruits. For the existence of carnivorous and herbivorous mammals it is by no means essential.

The lecture closes with a chapter on the protective mechanism of the eyeball, the structure of the orbit, retraction of the eyeball by the choanoid muscle, the nictitating membrane, the lacrimal secretion. The grasping of food with hands saves the eyes from much of the risk incurred when the food is seized directly with the mouth, therefore various protective mechanisms have disappeared in the higher orders. Collins concludes that the changes in the visual organs of mammals produced by the adoption of arboreal life increased both the range and accuracy of their powers of observation. Thus the way was opened for the evolution of the mental faculties which enabled man's ancestors on their descent from trees to assume a predominant position in the animal kingdom.

It is difficult to express one's appreciation of this very scholarly piece of work. It should be very carefully studied in the original.

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REFORMS IN ADVERTISING

An editorial in *The Printing Craftsman* shows that some periodicals are coming to see the wisdom of adopting ethical standards relating to advertising. Some of our newspapers exercise a certain degree of discrimination governed, it would appear, by its response to public opinion more than to the strictest regard for truth. Practically none of the large dailies will advertise the camouflaged abortion remedies, but Lydia Pinkham, Beecham's Pills, and sure cures of indigestion, are still able to buy space. We are glad to reproduce that part of the editorial in *The Printing Craftsman* dealing with patent medicine advertising.

"In the darkened age of a few years ago no business flourished more abundantly or with greater display than that system of public deception founded on patent medicines. Judged by the ratio of the value of the product to the amount received for it, no other business could compare with it. To its pedestal of profit, none, however worthy or legitimate, might hope to attain. To printers the necessities of its publicity were a bonanza. Four P's adorned this Aladdin's Lamp. Patent Medicine, Printing,

the Public and Prosperity were the certain guide-posts on the well-lighted way to wealth.

There is a vestige of this highway life but it is a darksome, melancholy trail and leads nowhere. Building a nail business in Weymouth would be a hopeful enterprise compared with any burdensome scheme to make Peruna a national beverage.

The whole thing has become a joke, and ridicule is an unbeatable antagonist. When Dr. Cabot, beginning an address to school-teachers, poured into an alcohol lamp the contents of a patent medicine bottle plainly labelled, and allowed it to burn as an enlightening illustration during his discourse, he simply added one nail to a coffin that was on its way.

The Patent Medicine business has been for some time dying and is almost dead. For printers whose future depends upon their success as business builders, it is a field of yesterday's ashes. Time and effort spent in raking it over are assets misspent.

A more plausible and tempting, and for that very reason more dangerous, field to invade, is the advertising of 'Proprietaries,' that is, medicines prepared by manufacturing chemists for use by physicians.

The enormous number and in many cases arrant fraud of these advertised 'pharmaceuticals' has led the American Medical Association, through its Council of Pharmacy and Chemistry, to investigate, and enlighten the medical profession, commending the worthy and condemning the bad. A great number, among them some of the most widely advertised and to their makers most profitable, were classified as 'without therapeutic value,' were barred from advertisement in reputable medical journals and their status made known to the profession. Such are no longer prescribed or countenanced by reputable physicians."

A SUGGESTION

THE vacation season is drawing to a close and the greater activities of business and educational organizations are being put into operation.

The medical schools will receive additions to the student body, medical societies and the various health organizations will enter upon new campaigns and the rush will soon be on. The period of rest and diversion is about over and the activities will be in full swing very soon.

Plans already formulated call for many meetings and busy doctors will have to select those meetings which seem to be most important, for it is well-nigh physically impossible to devote time to attendance upon the larger proportion of the conventions.

September will be an important month, for the New England Tuberculosis Conference oc-

curred this week on Wednesday in Worcester, to be followed by the celebration of the twenty-fifth anniversary of the Rutland State Sanatorium the next day.

The Boston Health Show, lasting a week, in conjunction with the meeting of the American Health Association will occupy the week of October 6-13. The annual meeting of the New England Surgical Society will be in Boston October 18-19.

The districts in the western part of the State will convene probably in October, in accordance with the plan developed by Ex-President Alfred Worcester, and the Middlesex North, Middlesex East and Essex South also plan for a meeting in October.

The Council meeting in October will be important for matters affecting coming policies will probably be presented.

It is timely to call attention to the probability of an aggressive campaign to be inaugurated by the Committee on Medical Education dealing with State standardization of pre-medical requirements for students in our medical schools. Efforts along this line in the past have been met with so much opposition that it was deemed best to omit a definite appeal to the legislature last winter because it seemed to be evident that our representatives and senators were not pleased with the reappearance of bills which were classed as hardy annuals but which never grew to the stage of fruition and for various reasons were stunted early in their infancies.

The fact that Massachusetts occupies the unenviable position of allowing low grade medical colleges to flourish and deceive young people with the false promise of providing a good medical education did not seem to arouse the interest of the great mass of well-qualified physicians throughout the State. It is true that the committees in charge of the bills fought valiantly, but they were outnumbered by the opposition and to the legislative mind numbers convey an indication of the wishes of our people.

The great progress made in the development of scientific medicine has focussed the attention of progressive physicians on purely medical problems and few of our influential men have felt inspired to array themselves in the ranks of the proponents of better laws.

It is certainly a function of the profession to promote the education of the fit and discourage the graduation of the poorly equipped practitioner. The work and standing of every unqualified doctor tend to lead the public to a biased estimate of the importance of scientific medicine.

The promise of future progress in the healing art lies in the furtherance of scientific investigation. We look to our Class A medical schools for the solution of the mysteries of disease and the utilization of scientific knowledge which may be applicable in these investigations.

A low grade medical school has neither the men nor the equipment which would indicate the probability of any contribution to scientific medicine. The logical contention, therefore, is that the well-equipped and forceful physicians in every community should be at work molding public opinion in favor of state laws regulating the requirements of medical schools. Nothing should be said or done to direct attention from the important meetings now being planned, but it may be possible for some to take time ordinarily given to other things and offer assistance where it may be needed.

If we could emerge from our attitude of conservatism and indifference and enter upon a campaign of instruction which would show the fallacies of the cults and the unrecognized commercial schools, more would be accomplished for humanity than is now being done by some of the health organizations. We hesitate and procrastinate because we are self-satisfied or sensitive. We comfort ourselves by our belief in our superior knowledge and shrink from the satire of our critics.

Can not something be done to prompt more general and active support of our committees? The autumn meetings should devote some time to a consideration of these matters.

VENEREAL DISEASE INFECTION

In the report of the Committee on Venereal Diseases of the State and Provincial Health Authorities a questionnaire brought out that, of 194 dermatologists and urologists, 95, or 49 per cent., thought that venereal disease infection was decreasing, 42, or 22 per cent., thought it was increasing, and 59, or 29 per cent., thought there had been no change in the trend recently.

It is claimed in the report that educational publicity is more frequently noted as a factor modifying the venereal rate than any other influence.

For the fiscal year ending June 30, 1923, \$400,000 was appropriated by Congress for venereal disease control, of which \$225,000 was allotted to the states. There are probably 900 dispensaries for the treatment of venereal diseases in this country.

Abstracts and references on any phase of venereal disease may be secured by applying to the Venereal Disease Division of the Public Health Service.

HEALTH AND WEALTH

Don't spend your health to gain your wealth; you'll find it doesn't pay. The doctor's bills to cure your ills will take your cash away, and you'll spend your wealth to gain your health. Now really does it pay?—*Bulletin Chicago School of Sanitary Instruction.*

Miscellany

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA

Dr. Maude E. Abbott has accepted the chair of Pathology and Bacteriology at the Woman's Medical College of Pennsylvania. Dr. Abbott comes to Philadelphia from McGill University, Montreal, Canada.

Dr. Abbott, who is one of the pioneer women in the medical profession, is widely known throughout this country and Canada for her writings and lectures on the subject she will teach in the local college and upon which she is a recognized authority.

According to Vida Hunt Francis, secretary of the executive committee of the board of corporators, the addition of Dr. Abbott to the college faculty is an important step toward making the faculty of the local institution the best in the country.

NOTES FROM THE BOSTON MEDICAL LIBRARY

Complete sets of the *Morphologisches Jahrbuch* (Gegenbaur), *Revue d'Anthropologie* (Paul Broca) and its successor *l'Anthropologie*, and the very scarce German dental periodical, the *Deutsch Monatsschrift für Zahnheilkunde*, have been added to the periodical collection and made available for reference.

The first numbers of the "*Annales de parasitologie*," a new periodical, have just been received. It will publish the work of the French speaking peoples and will take the place of the "*Archives de parasitologie*," which ceased publication in 1914 because of the war. The editor is Prof. E. Brumpt; the publisher, Masson et Cie., Paris; the subscription price, 40 francs per volume. In addition to original work there will be published critical reviews of subjects of interest to parasitologists. The two first numbers contain interesting reviews on the classification of the culicidae and on the culture of the trypanosomes by Neveu Lemaire and Ponselle. An important feature is the lists of newly discovered orders and species of parasites.

Through the alertness of one of the French agents a large number of volumes have been added to the collection of Paris theses, and the rare "*Astangahridaya*" of Vagbhata, ed. by A. M. Kunte, has been procured for the classical section. Vagbhata, who lived about the second century before Christ, was one of the three great classical Hindu physicians. The others were Susruta, the surgeon, and Charaka, the physician. They all flourished about the same time during the Brahminical period of Hindu science. Vagbhata had a clear, concise style and

in his compendium, so called, embodied the results of the researches of Indian physicians and surgeons who flourished during the Brahminical revival and the Buddhistic revolution. He distinguished between mental disorders and bodily diseases and was a good diagnostician. The library now has copies of the three early classical Hindu texts.

Attention is called to the recently published "*Chronologia medica*" of D'Arcy Power and J. S. Thompson, London, 1923. This handlist of persons, periods and events in the history of medicine is a compact, well-indexed chronology, which used in conjunction with Pagel's "*Zeittafeln*," 1908, and Garrison's "*Medical Chronology*" contained in his "*Introduction to the History of Medicine*," 3 ed., Phila., 1922, will prove valuable as a work of reference. Representing as it does the personal opinion of the authors regarding questionable dates in ancient history it is only natural that it would differ somewhat with other authorities. A strictly chronological arrangement of the dates of the older civilizations, instead of the present arrangement by peoples, would make the work of greater value. It is particularly rich in English names and events as out of 976 dates, contained in the book, 222 are of English physicians. It is deficient in American dates as only 33 Americans are mentioned, beginning with Benjamin Franklin, 1706-1790, who is listed as a physician, and noted for his medical activities. No mention is made of his great discovery of 1752 that lightning was the same as electricity. No mention is made of Drs. Samuel Fuller, who came over in the Mayflower, John Winthrop, Jr., first governor of Connecticut, Lawrence Bohun, Physician General to Virginia in 1611, Giles Firmin, who lectured on anatomy in 1647, Zabdiel Boylston, first inoculator, John Morgan, pioneer in medical education, Valentine Mott, James Jackson, Reginald H. Fitz, B. Joy Jeffries, pioneer in color blindness, John B. Murphy, John Ware, Jacob Bigelow, Nathan Smith, Joseph Leidy, Nicholas Senn, N. S. Davis, A. Jacobi, T. M. Rotch, C. A. Hertter, and others. The date of the first edition of the *Hortus sanitatis*, 1491, is given, but the important German "*Gart der Gesundheit*," 1485, is not mentioned. For a bird's-eye view of the history of medicine nothing is better than Julius Pagel's "*Zeittafeln zur Geschichte der Medizin*," Berl., 1908, which is well worthy of translation; and for a chronology of events, Garrison is recommended, especially for the modern period.

NEW BOOKS OF INTEREST

Colyer, J. F. "*Dental Surgery and Pathology*." Fifth edition. London, 1923. A well-written text on dental pathology.

Cowan, J., and Ritchie, W. T. "*Diseases of the Heart*." Second edition. London, 1922. This

second edition has been practically rewritten. Drs. Cowan and Ritchie are physicians to the Royal Infirmary, Glasgow, and this practical work on the heart is based largely on their personal experience.

Cutler, B. I. "Pediatric Nursing. Its principles and practice." New York, 1923. Miss Cutler is a graduate of the Massachusetts General Hospital Training School for Nurses, formerly head nurse in Children's Department at the Massachusetts General Hospital, and is now instructor in pediatric nursing at the University of Minnesota. She has written a clear, concise, well-arranged text-book for nurses wishing to specialize in the nursing of children.

Fonahn, A. "Arabic and Latin Anatomical Terminology, Chiefly from the Middle Ages." Kristiania, 1922.

Holland. "Staatscommissie in zake mond- en klauwzeer." Delft, 1921. A comprehensive report on foot and mouth disease based on the Dutch experience of 1892-1920, with a summary of the experience of the other European countries.

Humphreys, J., and Wellings, A. W. "A Text-book of Dental Anatomy and Physiology." London, 1923. This work is written to meet the requirements of the dental student preparing for examinations and contains a very good section on comparative dental anatomy.

Kelly, H. A., and Burnam, C. F. "Diseases of the Kidneys, Ureters and Bladder." Second volume. New York and London, 1922. Second edition of a standard work first published in 1914.

Kerley, C. G., and LeWald, L. T. "Digestive Disturbances in Infants and Children." Roentgenologically considered. New York, 1923. Number three of the Annals of Roentgenology, edited by Dr. J. T. Case and published by Paul B. Hoeber.

Mayo Clinic, Rochester, Minn. Collected papers. Volume 14. Philadelphia and London, 1923.

Medag, M. J. Bibliographie ... Nederlandsche neurologie en psychiatrie... 1922. A complete list of Dutch writings on nervous and mental subjects.

Report of the Fifth International Neo-Malthusian and Birth Control Conference. London, 1922.

Zinsser, H. "Infection and Resistance." Third edition. New York, 1923. Rearranged, rewritten and thoroughly revised.

EYE SIGHT CONSERVATION

A nation-wide survey of eyesight conditions in American education and industry has been undertaken by the Eye Sight Conservation Council of America, it is announced at the

national headquarters of the Council in New York.

As to industry, the aim of the survey, according to Guy A. Henry, general director of the Council, is to disclose the relation between defective vision and the efficiency of the nation's millions of workers. As to education, it is proposed to ascertain what steps have been taken by the schools to measure the extent of poor eye sight and to make effective preventive provision.

The Eye Sight Conservation Council's survey, marking the start of the research program recently adopted by the board of directors, has set out to reveal the effect of incorrect vision upon production. It has prepared a questionnaire designed to show increase in individual performance, decrease in accidents, increase in production and decrease in spoilage. The extent of color blindness, the number of blind in one eye, the number totally blinded, hours lost due to eye accidents, equivalent wages for lost time, use of goggles, cost of eye protection service, and total number of eye injuries are other objectives.

This questionnaire has been sent out to the industrial and commercial establishments located in the principal cities of the country.

The Council will also endeavor to show "to what extent is any effort being made to place in suitable jobs those workers who have been permanently or temporarily disabled because of eye injuries," and whether any attempt is being made to carry out the National Safety Code for the Protection of the Head and Eyes of Industrial Workers as prepared by the United States Bureau of Standards.

In the school survey, the Council is trying to reveal what provisions are being made to eliminate glare from unshaded light sources, windows, polished surfaces, blackboards, etc. One of the most important questions to which the Council seeks to provide a satisfactory answer is the relationship of defective vision to retardation. The Council's school survey extends to practically the entire Union. A questionnaire has been prepared and sent to schools and colleges generally.

Previous investigation, it is stated, has revealed alarming conditions of vision which must be remedied if national physical deterioration is to be avoided. The Hoover Committee on Elimination of Waste in Industry of the Federated American Engineering Societies found that industrial waste was due in considerable measure to faulty vision. It is estimated that 25,000,000 gainfully employed Americans are thus afflicted.

The Eye Sight Conservation Council is conducting a national movement for the conservation of vision in the schools.

Statistics covering many years show that nine out of every ten persons over 21 usually have

imperfect sight. At 31 the proportion is larger. Above 40 it is almost impossible to find a man or woman with perfect sight. It was learned by the examination of several thousand school children in one of our large cities that 66 per cent. of them had defective vision.

Proper lighting of schools, it is said, will go far toward eliminating these evils. Glare, according to Professor F. C. Caldwell of the Department of Electrical Engineering, Ohio State University, and a member of the board of directors of the Eye Sight Conservation Council, is a prolific source of poor eye sight. Commissioner of Education John J. Tigert says that retardation of pupils is probably due in some degree to unfavorable vision.

The Eye Sight Conservation Council is one of the organizations represented on the Sectional Committee which is to prepare a lighting code for the nation's schools. The code is being framed under the auspices of the American Engineering Standards Committee, with the American Institute of Architects and the Illuminating Engineering Society as joint sponsors.

ACTION OF THE INTERNAL REVENUE SERVICE

It may be remembered that Dr. Landesman's office was inspected by the agents of the U. S. Treasury Department and that the doctor was taken to the police station by the officer who was associated with the inspector, and later was discharged by the court.

The following letter has been received by Dr. Landesman:

Dr. Henry W. Landesman,
155 Warren Street,
Roxbury, Mass.

Dear Sir:

The Department in Washington, to which was referred the transcript of testimony taken at a revocation hearing held in your case, does not find that the National Prohibition Act in its specific provisions has been violated, and has accordingly directed us to dismiss the proceedings against you, and the permit, therefore, is again in force.

Very truly yours,
ELMER C. POTTER,
Federal Prohibition Director,
State of Massachusetts.

MASSACHUSETTS ASSOCIATION OF ASSISTANT PHYSICIANS

The second annual outing of the Massachusetts Association of Assistant Physicians was held on Friday, August 17, at Nantasket Beach.

Fifty-eight members and ladies took their places at the dinner, which was served at 1 p. m. Following this a short meeting was conducted by the president, Dr. Arthur E. Pattrell, during which business items were discussed. The holiday spirit being rampant and the members uneasy in anticipation of pleasures to come, this meeting was necessarily short. By unanimous vote the mantle of professional dignity was checked for the afternoon and the members proceeded to enjoy themselves thoroughly.

NEIL A. DAYTON, M.D., *Secretary*.
Wrentham State School.

News Items

REMOVAL.—Dr. John P. Brennan has resigned as city physician of North Adams and will remove to New Jersey and will develop a clinic in association with other physicians.

THE BERKSHIRE DISTRICT MEDICAL SOCIETY held its summer meeting August 30 in Lenox. Dr. Warfield Longcope addressed the meeting, taking as his subject "Common Cardiac Disorders." This was followed by a spirited discussion.

CHANGE OF OFFICE.—Dr. William B. Breed has removed his office from 402 Marlborough Street to 270 Commonwealth Avenue, Boston.

Dr. Maurice Fremont-Smith has removed his office to 99 Commonwealth Avenue, Boston.

THE HOUSE OF MERCY HOSPITAL OF PITTSFIELD recently conducted a drive, during which pledges were secured amounting to \$326,000. A portion will be used in liquidating indebtedness, a considerable sum will be used in making alterations and additions to the hospital, and the balance will be put with the endowment fund.

ODD FELLOWS HOSPITAL.—The Grand Lodge of Massachusetts, I. O. O. F., at its one hundredth annual session held September 6, 1921, appropriated \$125,000 for a hospital to be an addition to the Odd Fellows Home, Worcester, Mass. The hospital will be a memorial to the late Alfred S. Pinkerton, who was for many years prominent in the affairs of this order. There will be accommodations for 50 patients, and work on the building will be begun this autumn.

WEEK'S DEATH RATE IN BOSTON.—During the week ending September 1, 1923, the number of deaths reported was 178, against 185 last year, with a rate of 12.05, against 12.63 last year. There were 26 deaths under one year of

age, against 36 last year. The number of cases of principal reportable diseases were: Diphtheria, 59; scarlet fever, 10; measles, 11; whooping-cough, 11; typhoid fever, 3; tuberculosis, 25. Included in the above were the following cases of non-residents: Diphtheria, 4; tuberculosis, 3. Total deaths from these diseases were: Diphtheria, 5; measles, 1; tuberculosis, 7. Included in the above was the following case of a non-resident: Tuberculosis, 1.

Obituary

JAMES PHILIP McADAMS, M.D.

DR. JAMES PHILIP McADAMS, a Fellow of the Massachusetts Medical Society, died at his summer home in Westford, August 26, 1923, at the age of 53. The cause of death was pernicious anemia.

He was born in Charlestown, November 25, 1868, attended the schools there and entered Harvard College, where he received an A.B. *magna cum laude* in 1891. After three years in Harvard Medical School he took an M.D. and became house officer at St. John's Hospital at Lowell, joining the Massachusetts Medical Society in 1896 and settling in practice in Lowell. There he conducted a general practice and had become one of the best known physicians of the city. He was a member of the American Medical Association. He had been ill for several months. He is survived by his widow, having been Mary Rinn of Somerville, and seven children.

FREDERICK W. SEYMOUR, M.D.

DR. FREDERICK WARD SEYMOUR died suddenly September 6, at the home of his brother, Dr. Malcolm Seymour, at Norwell, Mass., following a stroke sustained only a few hours earlier.

Dr. Seymour was born June 10, 1880, in Holyoke, Mass., and was the son of Robert Hoe Seymour and Helen (Hazlett) Seymour. He studied first at Williston Seminary, and entering the Harvard Medical School was graduated in the class of 1904.

He began his practice at Rochester, N. Y., in 1906, and was a member of the staff of the Rochester General Hospital. He was a member of the American Medical Association. He entered the World War in 1918, and received his discharge as captain in 1919.

On October 10, 1922, Dr. Seymour married Miss Anita Kilham Dale of Lexington, and she and his brother are his only survivors.

Correspondence

LONDON LETTER

(From Our Own Correspondent)

London, August 3, 1923.

Annual Meeting of the Society for the Prevention of Venereal Disease.—The annual meeting was held, on July 13, last, in Adam Hall, London, under the presidency of Lord Willoughby de Broke. The chairman said that the Society accepted the Trevethin report, the report of the Parliamentary Committee appointed to consider the question, in view of the fact that this report endorsed the essential policy of the Society, and also in view of the unqualified acceptance of the Trevethin report by the National Council for Combating Venereal Diseases; that the Society for the Prevention of Venereal Disease is prepared to form a Joint Committee with the National Council for Combating Venereal Disease, under the chairmanship of Lord Dawson of Penn, to watch and further the policy based on the terms of the Trevethin report. This is to say that the Society for the Prevention of Venereal Disease will combine with the National Council in fighting venereal disease. In fact, a compromise will be come to if the National Council are willing. The aims of these bodies up to the present have been, as their names express, one to prevent venereal diseases, and the other to treat it in the early stage and, if possible, to prevent them from developing. The Society has held out the olive branch, and the next "move" is with the Council. It is an important question, and it is deplorable that medical authorities in this country should be divided in opinion as to the best methods of dealing with this plague.

Chronic Toxemia and Mental Disorders.—It has been held by many medical men, including alienists, for some time, that certain mental disorders originate from physical ailments, and especially from toxemia brought about by intestinal stasis, or by infected foci in other parts of the body. William Hunter was the first to call attention to the menace of chronic toxemia or sepsis, and he put down to this cause many of the diseases and conditions of ill health from which mankind suffers. Sir Arbuthnot Lane has been a pioneer in this direction, and he ascribes to chronic intestinal stasis followed by toxemia, perhaps, most of the chronic diseases and some of the mental disorders. Dr. William Ford Robertson, late pathologist to the Scottish Asylum Board, who has died recently, made during the last few years of his life a special study of the relationship of dementia precox to infection, and concluded that the infective theory of causation was the most in accord with facts, and he further was inclined to think that the offending infective agents were present in the intestines. Dr. Robertson at the time of his untimely death was engaged in the prosecution of these investigations. Dr. White Robertson of London has been investigating along similar lines and in the London *Practitioner*, August, published a very interesting paper recording the results of his investigations and his consequent views as to the relationship of toxemia produced by chronic intestinal stasis to epilepsy. He seems inclined to believe that intestinal stasis and its sequelae are important factors in the causation of epilepsy, and that the prevention of stasis or its effective treatment when contracted, is the rational way of dealing with epilepsy. Dr. Graves, who is in charge of an asylum at Birmingham, has also been pursuing similar researches, that is, with regard to chronic toxemia and mental disorders, and appears to have reached similar conclusions.

Dr. H. A. Cotton, Medical Director of the State Hospital, Trenton, N. J., on July 11 read a paper

before the British Medico-Psychological Society in London, in which he gave his experiences, and views gathered therefrom, in treating patients at his institution, on the theory that their mental disorders arose from chronic sepsis. He found that when the infective foci had been removed or "cleaned up," that the effect on the mental conditions was remarkable. Following this mode of treatment, the recoveries at Trenton have more than doubled.

Fighting Tuberculosis.—At the Sanitary Institute Congress which opened at Hull, Yorkshire, on July 30, in a discussion on the campaign against tuberculosis, Dr. J. A. Raeburn, Tuberculosis Medical Officer of Hull, declared that the gap between preventive and curative measures dealing with tuberculosis must be obliterated. At present, about half the deaths from tubercular disease were not notified till death, or within three months of death. This meant that a large number of tuberculous cases were going about and infecting others. These must be sought out and treated. Dr. Raeburn urged also that large employers should undertake to provide for the systematic examination of their employees.

Dr. Percy Hall said that probably 90 per cent. of the population had active or healed tuberculosis somewhere in their bodies, but the bacillus was powerless to do harm unless the soil was prepared. The natural defenses of the body required attention. Feeding was particularly important. The habit of eating canned and frozen food was bad. The daily rations should include milk, eggs, vegetables, fruit and whole-meal bread. Dr. S. G. Moore of Huddersfield declared that people in this country did not consume enough milk. A quarter of a pint of milk per head was woefully inadequate, bad for the health of the child, for the physique of the nation, and for the farmers. The quality of the milk supply, too, was unsatisfactory. Dr. W. J. Howarth, City of London Medical Officer, said that the present grading of milk was too complicated to be practically enforced. There were seven grades, the last of which might be designated "A. O. D. S.," or "any other dirty stuff." As a matter of fact, there should be only two kinds of milk, that which was fit to drink and that which was not.

Dr. Readman, Tuberculosis Officer of the East Riding of Yorkshire, said that milk when it reached the consumer was the filthiest drink known. A pure supply was a necessary condition for the suppression of tuberculosis.

Notification of Tuberculosis.—Although tuberculosis is a notifiable disease in Great Britain, it seems that the law is more honored in the breach than in the observance. So much so has this been the case that the Minister of Health has addressed a circular on the question to all medical practitioners in England and Wales. It is pointed out in this circular that in certain districts "more than 40 per cent. of persons dying from tuberculosis had not been previously notified as suffering from that disease." It is the duty of the medical man to notify such cases within forty-eight hours after completing his diagnosis. Of course, strict secrecy is maintained by the medical officer of health to whom the notification has been sent.

Vaccination and Conscientious Objectors.—In Great Britain the liberty of the subject is so highly esteemed that the welfare of the community at large seems to be a secondary consideration. Not only is the notification of tuberculosis treated lightly, and no doubt disease spread amongst the community, but vaccination against smallpox is easily evaded. In fact, it appears now that this law is compulsory only in name. Anyone who says that he or she conscientiously objects to it is absolved from compulsion and allowed to be a source of danger to all in the neighborhood. The Labor Party generally are extremely jealous of any infringement of what they consider their rights or of any curtailment of their

liberty. Being ignorant of medical science, they are contemptuous of it and, as a rule, the working classes, who dislike the slight annoyance of vaccination, evade the law by declaring themselves conscientious objectors, although the term with them usually means nothing and is merely a figure of speech. In these days the Labor Party, being politically powerful, are kow-towed to; and, in spite of the fact that the Government is well aware of the menace of a large number of unvaccinated persons to the public, no steps are taken to repeal the conscientious objectors' clause.

Rockefeller Medical Fellowships.—The Medical Research Council has just announced that it has awarded Rockefeller Medical Fellowships, tenable in the United States of America during the academic year 1923-1924, to the following: John Crichton Bramwell, M.D. (Cantab.), M. R. C. P., Medical Registrar and Registrar to the Cardiographic Department, Manchester Royal Infirmary; Norman McOmish Dott, M.B., Ch.B. (Edin.), F.R.C.S., Ed. Assistant in the Physiological Department, University of Edinburgh; Helen Ingleby, M.B., B.S. (Lond.), M.R.C.P., Assistant Physician, Victoria Hospital for Children, and South London Hospital for Women; Hugh Kingsley Ward, M.B. (Sydney), D.P.H. (Oxon.), member of the scientific staff of the Medical Research Council, and working in the Department of Pathology, University of Oxford. All of these have distinguished themselves in research work, the lady of the party, Miss Helen Ingleby, especially so.

ARTICLES ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY

Mr. Editor:

In addition to the articles enumerated in our letter of July 31, the following articles have been accepted:

Lederle Antitoxin Laboratories: Thromboplastin—Lederle.

National Aniline and Chemical Company: Enteric Coated Tablets Neutral Acriflavine—"National"; Ointment Neutral Acriflavine—"National" 1 per cent.

E. R. Squibb & Sons: Solution of Hypophysis—Squibb; Arsphenamine—Squibb, 1 Gm.; Arsphenamine—Squibb, 1.2 Gm.

Winthrop Chemical Company: Luminal Tablets ½ Gr. (Winthrop Chemical Company).

W. A. PUCKNER, Secretary.
Council on Pharmacy and Chemistry, A. M. A.

THE BOSTON HEALTH SHOW

Boston, Mass., Aug. 31, 1923.

Mr. Editor:

Knowing you will be interested, as a member of our Exposition Committee, to learn of the progress being made in the arrangements of the Boston Health Show, October 6-13, I am writing you a few particulars of the plans so far perfected.

The American Public Health Association will hold its convention in conjunction with the Show, October 8-11. The churches of Greater Boston will co-operate with the association and the Health Show in making October 7 Health Sunday.

Exhibits.—Some fifty committees working on exhibits, stressing every possible phase of public health. For the purpose of continuity and completeness, exhibits will be grouped and classified under special headings. (See circular enclosed.)

Program.—Music, lectures, Parenthood Institute, demonstrations of physical exercise, esthetic dancing, athletic contests, motion pictures, etc. *Pageant of Health*—specially written for the occasion, with a cast of 400.

Physical Examinations of babies and adults, a large corps of physicians and nurses giving their services.

Tickets—Price of tickets 50 cents at the door and 40 cents pre-sale in books containing 25. Industries and organizations are buying in bulk to sell to their employees or to use as gifts. (Tickets on sale at the Health Show office.) *Beneficiaries*—Fifteen cents on each ticket sold to be donated to the New England Health Institute and Boston Health League, which includes the 27 principal health and social agencies of Greater Boston.

The Boston Health Show in its scope and purpose should make a worth-while contribution in the interest of positive health achievement for both child and adult. I shall be glad to furnish you with any special information you may desire or to receive from you any suggestions. With this assurance, and thanking you for your interest in the enterprise, I remain,

Sincerely yours,

MARY BEARD,
Chairman, Board of Control.

NOTICES

FIFTY-THIRD ANNUAL CONGRESS OF THE AMERICAN PRISON ASSOCIATION

BOSTON, MASS., SEPTEMBER 13 TO 19, 1923

Meetings Held in Boston Technology Building

Medical Section

Saturday Morning, September 15—9.15 to 12.30

Technology Building

"Care of Male Defective Delinquents in Massachusetts," by Frank H. Carlisle, M.D., Medical Director, State Farm, Bridgewater, Mass.

"The Treatment of Venereal Diseases in a Reformatory for Women," by Lena Beach, M.D., Superintendent, the Home School for Girls, Sauk Center, Minn.

Medical Section

Saturday Evening, 8.15

General Session

"The Relation of Physical Disability to Delinquency," by Eugene R. Kelley, M.D., State Commissioner of Health, Boston, Mass.

"Psychiatry and Prison Management," by Edgar King, M.D., Major, Medical Corps, U. S. A.

Medical Section

Monday Morning, September 17—9.15 to 12.30

"The Treatment of the Drug Addict," by Ernest S. Bishop, M.D., Consulting Physician, New York State Prison Commission.

"The Effects of Electricity on the Organs of the Body," by Amos O. Squire, M.D., Physician to Sing Sing Prison, Ossining, N. Y.

EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C.,	October 8, 1923
At Chicago, Ill.,	October 8, 1923
At San Francisco, Calif.,	October 8, 1923

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated

in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily oral, written and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon-General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, Surgeon-General.

ANNUAL MEETING OF THE AMERICAN ASSO- CIATION OF ORAL AND PLASTIC SURGEONS

The third annual meeting of the American Association of Oral and Plastic Surgeons will be held in the Rose Room, Congress Hotel, Chicago, Ill. Monday and Tuesday, October 22 and 23.

An interesting program has been arranged and those interested in this field of surgery are cordially invited to be present.

TRUMAN W. BROPHY,
President,

81 East Madison Street, Chicago.

HENRY SAGE DUNNING,

Secretary and Treasurer,

33 East 68th Street, New York City.

DISEASES REPORTED TO THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

WEEK ENDING SEPTEMBER 1, 1923

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	10	Ophthalmia neonato-	
Chicken-pox	18	rum	13
Diphtheria	124	Pellagra	1
Dog-bite requiring an-		Pneumonia, lobar	11
tirabic treatment	3	Scarlet fever	54
Dysentery	1	Septic sore throat	6
Encephalitis lethar-		Suppurative conjunc-	
gica	2	tivitis	8
Epidemic cerebrospi-		Syphilis	28
nal meningitis	1	Trichinosis	1
German measles	2	Tuberculosis, pulmo-	
Gonorrhea	114	nary	80
Influenza	3	Tuberculosis, other	
Malaria	1	forms	10
Measles	35	Typhoid fever	21
Mumps	20	Whooping-cough	77

SOCIETY MEETINGS

DISTRICT SOCIETIES

September, 1923:—Meeting of Franklin and Hampshire District Medical Societies at South Deerfield.

Essex North—Combined Meeting with Middlesex North, Middlesex East and Essex South in October. Semi-annual Meeting at Haverhill, January 2, 1924. Annual Meeting at Lawrence, May 7, 1924.

Bristol South—Semi-annual meeting will be held in New Bedford, November 1, 1923. The annual meeting will be held in New Bedford, May 1, 1924.

STATE, INTERSTATE AND NATIONAL SOCIETIES

September 13, 1923:—Celebration of twenty-fifth anniversary of the Rutland State Sanatorium at Rutland.

October, 1923:—Boston Health Show will be held in Boston October 6-13, inclusive.

October, 1923:—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

October 18-19, 1923:—Annual Meeting of New England Surgical Society in Boston.

For list of Officers of the Massachusetts Medical Society, see page viii of the Advertising Section.